

Railway Age

Vol. 78, No. 16

March 21, 1925

Table of Contents Appears on
Page 5 of Advertising Section

What About the Pullman Surcharge?

IN spite of all the attacks upon the Pullman surcharge made before the Interstate Commerce Commission and in Congress it is still in effect and the railways are continuing to receive the revenue from it. Nevertheless, the fact should be frankly recognized that it is one of the most unpopular railroad charges ever made. Furthermore, the way in which the revenue yielded by it is collected is morally and logically indefensible. Its mode of collection is morally indefensible because the Pullman Company has to collect it and in consequence the Pullman Company receives much of the odium from an unpopular charge from which it does not derive a cent of revenue. Its mode of collection is logically indefensible because the railways should collect it in such a way as to create a minimum of popular antagonism. No better way to make the charge unpopular could have been conceived than that of calling it a "50 per cent surcharge," whether it was to be applied to Pullman tickets or anything else. Its name damned it from its birth. The traffic officers of the railways will be strangely remiss in their duty if they do not take steps to devise and suggest to the Interstate Commerce Commission as soon as practicable some other way to get this revenue. No doubt it should be collected from passengers using Pullman service, but we predict that it will not survive the next session of Congress unless the method of collecting it and its name are changed. Why continue to call it and collect it as a "50 per cent surcharge on Pullman tickets" when it is not a surcharge on Pullman tickets at all, when the Pullman Company has nothing to do with it except to collect it, and when it actually is an addition of about 10 per cent to the charge for a railroad ticket used in getting a particular kind of transportation service? The railroads need and ought to have the money, but if they are to continue to get it some less unpopular means of getting it must be adopted.

Stabilizing Railway Employment

AMOVEMENT was definitely started last year to stabilize employment in railway service. A committee was appointed by the Association of Railway Executives to co-operate with the Interstate Commerce Commission in studying the subject. It is interesting to find from a comparison of the statistics month by month that employment on the railways actually was much more stable in 1924 than in 1923. This was the case in spite of the fact that fluctuations in the volume of freight business were relatively very small in 1923 and much larger in 1924. The number of men employed in every month in 1924 was less than in 1923, the average number of 1,770,391 for the year being 102,379 less than the average number employed in 1923. The number employed in 1923 varied from 1,779,516 in January to 1,973,505 in August, a difference of 193,989. In 1924 it increased from 1,749,927 in January to 1,822,616 in October, and then declined to 1,736,699, the maximum fluctuation being 85,917.

Large as this decline from October to December was, it was less than in the corresponding period of 1923 when the reduction in the number of employees was 142,715. The number of men employed in the maintenance of way and structures department always has been subject to wide seasonal variations. The maximum fluctuation in employees in this department in 1923 was 145,558 while in 1924 it was only 93,468. To what extent changes in conditions and changes in policy caused the fluctuations in employment to be so much less last year than the year before it is impossible to say but that efforts being deliberately made by the managements to bring about greater stability produced part of the result cannot be questioned. The widespread practice of largely increasing employees when business improves and then ruthlessly laying them off when it slackens is one of the worst curses of modern industry. It is harmful to employees, destructive of morale, a breeder of social unrest and radicalism, and in the long run most expensive to those concerns which practice it most recklessly. Every financier and business man who takes a farsighted view of industrial efficiency and the wellbeing of society will join the movement to increase the stability of industrial employment.

How Many Delegates Will We Send to London?

THE railroads of the United States and Canada could send 1,000 delegates to the International Railway Congress in London this summer if they so desired. The basis of apportionment of delegates is in kilometers. Expressed in miles it is as follows:

Railroads less than 62 miles in length are not entitled to representation.

Mileage from 62 to 124, one delegate; 124 miles to 311 miles, two delegates.

One additional delegate for each additional 311 miles or fraction thereof up to 1,864 miles.

One additional delegate for each additional 621 miles or fraction thereof above 1,864 miles.

Maximum quota for one railroad, 10 delegates.

On this basis American and Canadian railways could, as we said above, send 1,000 delegates. Now, of course, an important part of the roads entitled under the rules to send delegates—such as many of the less important short lines, interurban lines and so on—could not be expected to do so to any profit. Certainly, however, there are sufficient standard steam railroads whose officers would find the proceedings of interest to muster at least 500 delegates, if all eligible roads should join the International Railway Congress Association and send all the delegates allowed them. And if they would send only half of this number—250—the 1930 Congress would probably come here without much question. Attendance of almost 1,000 is not unusual for a convention in this country appealing to but one class of railway officers. Surely we should be able to send a fourth as many to a meeting which, even though it is held in a foreign country, has a program

covering practically all phases of railway work. All the more so, because the international meeting comes not each year, but only once in five.

Store-Door Delivery

STORE-DOOR delivery of freight has "got to come," to use an expression of the street. This is the conclusion of F. J. Scarr, supervisor of motor-truck operation of the Pennsylvania Railroad; and he gives as his principal reason, the fact that the saving which could be effected by abolishing the waste, which at present is unavoidable in moving freight to and from crowded stations through congested city streets, is represented by such a large figure that economic conditions will force action of some kind. This warning should be heeded. Mr. Scarr has had exceptional opportunities to form correct judgments. A brief abstract of his recent address in Philadelphia is printed on another page. His seven points are bristling with difficulties, of course. No well-informed person could at present propose anything better. But it is enough for today to consider Point Number 2; "co-operation by railroads (the railroads of a given city) is essential." And the Pennsylvania is ready. Mr. Scarr says that progress is going to be made "whether we assist or retard." That this has been true in other railroad matters wherein the public has a direct and lively interest, should be a sufficient hint in connection with this problem, if any further hint is needed.

New Rules for Trainmen

THE progress of civilization, except at rare intervals, has to be measured by inches, and sometimes by fractions of an inch; and railroad civilization is not very different from other kinds. The growth of the standard code of train rules is an illustration. The New Haven has modified Rule G to include prohibition of the use of narcotics. Who had ever thought of that? The Pennsylvania, making a change that has been needed ever since the standard was first adopted, forty years ago, now says (Rule 34) that firemen "must see" fixed signals; and that trainmen must, if they can; that is, whenever they ought to. The excuse that he "was putting in a fire" will no longer avail the negligent fireman. Changing the rule is not certain to improve a dull fireman, of course; nor will it change the heart of a dishonest one; but it is a decided advance to have the rule straightened out. Straightening the men will still be the officer's job. When shall we get rid of some of the numerous other crudities that still weaken our train rules? One small inch of progress has been made in another direction: a certain Western road has amplified its personal-conduct rules by requiring passenger trainmen, when addressed by women, to raise their caps, as a mark of courtesy. Certainly a good idea! The long-standing rule requiring removal of caps in dining cars ought to have prepared the men for this further step. Still, the great difficulty experienced by many men—men fully as well-bred as brakemen—in properly lifting their hats to ladies on the street is a fact which will warn the trainmaster that he has now got a big job on his hands. Men who start to lift their hats and then "fade away" about the time that the first finger reaches the hat brim, are exceedingly common in some highly civilized towns. Why not adopt the military practice of only touching the cap? However, as in the matter of the daily dozen of calisthenics for clerks, the main thing is to make progress of *some kind*; just what kind is not so important. It is to be hoped that men who learn to lift their caps on all

proper occasions will at the same time learn to say "Madam." Employees who say "Lady" instead, are still very common. The writer saw one, the other day, receiving callers in the superintendent's office of a Class I road (that is to say, it is a first-class road in other respects).

Check Terminal Steam Losses

NO railway fuel economy campaign can be complete which leaves out of consideration the avoidable steam losses occurring at most engine terminals. These losses frequently more than offset any economies possible in the terminal power plants themselves. Only a relatively small proportion of terminals are equipped to utilize the heat in locomotive blow-off steam and hot water; steam pipes are often improperly insulated, heating systems poorly designed and blower lines neglected. Low pressure exhaust steam is more efficient for heating purposes than high pressure steam and yet the greater ease of extending live steam mains whenever additional radiation surface is needed has encouraged waste in this direction. When no traps are provided on the high pressure radiators the steam frequently escapes to the atmosphere without giving up its heat. Much steam is wasted in leaky blower lines, insulated improperly or not at all, and using blower tips which do not produce the best results in front-end draft. Tests made some months ago at the Western Avenue, Chicago, enginehouse of the Chicago, Milwaukee & St. Paul indicate that at 125 lb. pressure steam will be discharged through a ¾-in. pipe at the rate of about 107 boiler hp.; through a 1-in. pipe, 188 boiler hp.; through a 1¼-in. pipe, 294 boiler hp. Most engine terminal blower lines consist of 1¼-in. pipe which, with unrestricted volume back of it at 150 lb. gage pressure, will discharge steam at the rate of 345 boiler horsepower. Because of the smaller pipe commonly used in the drop lines much less steam than this is actually used. However, the tests show that with a boiler gage pressure of between 125 and 150 lb. the average steam consumption of the blowers is not less than 50 boiler horsepower. Figuring six pounds of coal for a boiler horsepower hour, and with the blower on 45 minutes, this represents about 225 lb. of coal. The entire practice regarding the use of steam at engine terminals, particularly for heating purposes, blowing off locomotives and building up the steam pressure again can well be reviewed at many engine terminals to make sure that avoidable fuel wastes are not being incurred daily.

When Will the Supply of Wooden Ties Be Exhausted?

THE Committee on Ties of the American Railway Engineering Association has done a large amount of valuable work in recent years in studying the problem of timber supply to fulfill future requirements for this essential feature of the track structure. Some years ago the committee prepared a masterful report for the American Railway Association which set definitely at rest the current hysteria, inspired in large part by promoters of substitute constructions, to the effect that the supply of tie timber would soon be exhausted. In its latest report, presented last week at the convention in Chicago, the committee submitted a large fund of information on the use of foreign woods, primarily those from Central and South America, which showed that experimental use of tropical woods had afforded decidedly unsatisfactory results.

Based on these experiments and other considerations the committee offered the conclusion that a marked advance in the price of native cross ties must occur before foreign woods can hope to compete in the American market.

Such advances in prices will be accompanied by corresponding increases in the prices of other forest products which will naturally curtail the demand by causing consumers to adopt substitute materials in all cases where the primary consideration is the relationship of prices. But what is more certain is that the railroads themselves will greatly reduce their requirements by the general adoption of measures for the conservation of cross ties already practiced by a considerable number of them. When all the railroads are in the position to enjoy the results obtained through the exercise of proper precautions in the purchase, selection, treatment and protection of ties now observed by a few of the railroads the total annual requirements for cross ties will fall far below present figures.

This prospect for a decreased demand for forest products bears a significant relationship to facts recently given out by the Southern Pine Manufacturers' Association with respect to the estimated perpetual supply of southern pine. A survey of the field carried out at the direction of that association shows that the assured annual growth will permit of a yearly cut of from six to seven billion feet without taking into consideration the results of state and national reforestation programs. This estimated perpetual supply is equal to nearly one-half of the cut in 1924, which is close to the maximum production for any year in the history of the Southern pine field in spite of the fact that the operations in this field have extended over a long period.

Considering these facts in connection with the supplies of timber available on the West Coast, where operations have been conducted on a large scale for only a limited number of years, it does not seem that there is much occasion for alarm with respect to the supply of cross ties within the very near future. Taken as a whole, however, the facts point definitely to the need of securing the maximum service from the ties purchased and the development of substitutes for the wooden cross tie, not so much because of an eventual depletion of supplies as by reason of the fact that increases in price will upset the present relationship between the cost of wooden ties and the cost of substitutes. This point has been stressed by the Committee on Ties for a number of years and should receive consideration from the railroads second only to that of perfecting practices in the purchase, use and conservation of the wooden tie.

How Regional Boards Benefit Shippers

IT is impossible to say what part of the improvement within recent years in the railway service rendered to shippers is attributable to increased cooperation of shippers through the Regional Advisory Boards, but there can be no doubt that much of the improvement has been due to this cause. It would be equally impossible to estimate how much this cooperation has been worth to the railways and the shippers, but that it has been worth a great many millions of dollars to each, and worth much more to the shippers than to the railways, there can be equally little doubt.

Its most tangible result has been the distribution of cars to all territories and shippers more nearly in proportion to their needs than ever before. The statistical evidence of this is afforded by the reports regarding car shortages. Even at times when large net surpluses are

reported there are always shortages here and there because cars are not distributed in exact accordance with traffic requirements. Throughout 1921, a year of profound depression, car surpluses varying from 80,000 to more than 500,000 were reported, but even at the same time, there were also reported shortages here and there which in 17 weeks of the year exceeded 1,000 cars and aggregated as much in one week as 11,000 cars. The total freight business handled in 1924 was much larger than in 1921 and even in the slump of last summer the car surplus was at the maximum only 363,000 cars, but there were only 11 weeks of last year when the car shortages exceeded 1,000 cars and their maximum was less than 7,400 cars. This was in February when a very large amount of coal was being shipped in anticipation of a strike. There were seven weeks in the year 1924 when the total shortages reported amounted to less than 100 cars. This was the first year when they ever were less than this figure.

Formerly reports of coal car shortages were the rule, but there was not at any time a real shortage of coal cars in 1924. The distribution of cars to handle grain always has presented an extremely difficult problem, but in spite of a record grain movement, there was no grain car shortage last year. For the first time in 15 years there was no shortage of cars for handling the fruit and vegetable crops of California. Never was the distribution of cars throughout the country so nearly perfect as last year.

For the success achieved in satisfactorily handling the grain crops in Kansas, Oklahoma and the southwestern states a large part of the credit belongs to the Trans-Missouri Kansas and Southwest Regional Boards. For the even greater achievement of satisfactorily handling the grain crops of Montana, North and South Dakota and Minnesota without car shortage or blockade, a very large part of the credit is due to the grain committee of the Northwest Regional Board.

To the activities of the perishables committee of the Pacific Coast Regional Board, in coordination with the terminal perishables committees of the boards east of the Mississippi River, is largely due the orderly marketing of the California fruit and vegetable crop. One producer estimates that the terminal arrangement at New York worked out by the Atlantic States Regional Advisory Board was responsible for an increased net return to the grape shippers of California of five million dollars. The terminal committees of the different regional boards assumed the responsibility for recommending embargoes and issuing permits at eastern terminals according to the ability of receivers of perishables to handle the commodities, and while the results secured were hardly as good as anticipated, they probably were better than ever before.

A novel plan was worked out by the railways in cooperation with the Central Western District Board to adjust shipments of sheep and the ordering of cars to avoid gluts in the Chicago, Omaha and Denver markets. Railroad wires and radio broadcasting stations were used to disseminate up-to-date information among sheep producers regarding shipments of sheep to various markets and the prevailing prices. This resulted in a stabilization of shipments, and in consequence of market prices, which the chairman of the sheep committee of the Utah Division of the Central Western Regional Board has estimated was worth seven million dollars to the sheep raisers of the central western district. Prices in the markets mentioned are said to have varied in 1924 only from 13½ to 14½ cents. An attempt will be made in 1925 to use the same method to improve the marketing and prices of live stock in the same territory.

Improved distribution and more rapid movement of cars have in effect largely increased the working capital of the nation and thereby increased the productive power of its

capital many millions of dollars annually, although how much nobody has yet ventured to estimate. There are approximately two billion dollars worth of goods constantly in transit on the railroads. The average distance shipments were moved daily in 1924 was approximately 40 per cent greater than in 1920. While goods are in transit, they are earning no return, but interest on the investment in them is accumulating, and, of course, the shorter the time they are in transit the less interest accumulates. It has been estimated that the interest saved on goods in transit in 1924, as compared with 1920, because of their more expeditious movement, exceeded forty million dollars.

Another saving to business interests has been made which undoubtedly has been larger, but of which no estimate has ever been made. The faster and more reliable transportation service is, the smaller are the inventories that all classes of producers and merchants need to carry. Statements made by men of various classes indicate that the improvement in transportation service has resulted in large reductions in the inventories being carried by business concerns of all kinds in all parts of the country. One large manufacturer on the Atlantic seaboard has estimated that more expeditious and dependable railway service saved his concern alone twelve million dollars in 1924.

The frequent conferences between shippers and railway officers in regional board meetings not only give opportunity to shippers to advise the railways of their present and prospective transportation needs, but, also, give the railways opportunity to bring home to shippers the responsibilities and duties of the latter regarding transportation conditions. Past congestions and car shortages have been by no means all due to inadequacies of railway facilities, although the railways got the blame for them. In many cases the facilities of the railways have been sufficiently increased, but shippers have not enlarged enough their own facilities for promptly loading and unloading their freight and storing it. In consequence railway cars and terminals have been improperly, and at exorbitant expense, used for storage purposes when they were needed for transportation purposes. Studies are now being made in the different regional boards of the freight delivery problem, the interrelation of motor and steam transportation, increased storage capacity either at points of origin and destination, and so on.

The cheapest, most adequate and most satisfactory transportation practicable can be provided only by real cooperation between the railways and the shippers, and the results secured by the cooperative methods adopted within recent years are merely a token of what can be accomplished.

Articles in the March Railway Mechanical Engineer

Methods of Repairing Steel Cars, by George P. Hoffman, general car foreman, Baltimore & Ohio. An abstract of a paper presented at the convention of the International Railway General Foremen's Association, Chicago, in which are discussed the practical benefits to be derived, both from the standpoint of economy and time saving, by the use of the unit spot system. Page 153.

Analysis of Causes and Remedy for Hot Boxes, by M. L. Harger, general foreman, car department, Pittsburgh & Lake Erie. A paper submitted in the competition for hot box prevention in the Railway Mechanical Engineer, which closed March 1, 1924. Tells of the benefits to be derived through co-operation in maintenance and

from the intelligent selection of lubricants. Page 157.

Southern Builds Modern Equipped Locomotive Shops. A description of the equipment of and the methods of operating the new Finley locomotive shops of the Southern, North Birmingham, Ala. Page 165.

Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway (Economics, Washington, D. C.)

Books and Pamphlets

Annual Bulletin of the American Railway Association, Car Service Division, for 1924. March 1, 1925. 43 p. New York, 1925.

Current Digest of Decisions under the Interstate Commerce Act (Supplemental Digest No. 6) (March, 1921, to October, 1923), by Herbert C. Lust. 1651 p. Pub. by H. C. Lust Co., Fowler, Ind., 1924.

Draft Concessions of the Deutsche Reichsbahn Gesellschaft. Annex I—Draft Law. Annex II—Draft Concession. Annex III—Draft Law Relating to the Personnel of the Deutsche Reichsbahn Gesellschaft. [Printed in German, French and English.] Pub. by Reichsdruckerei, Berlin, August, 1924. 69 p.

In the Matter of the Joint Application of the New York, Chicago, & St. Louis, Chesapeake & Ohio, Hocking Valley, Erie, Pere Marquette for Authority for the N. Y. C. & St. L. to Acquire Control of the Systems of the Other Companies Named. 551 p. Pub. by Evening Post Job Print. Off., Inc., New York, 1925.

Indian Railways, by K. V. Iyer. Pub. by Oxford University Press, New York, 1925. \$1.00.

Valuation of Industrial Securities by Ralph E. Badger. 188 p. Pub. by Prentice-Hall Co., New York, 1925.

Periodicals

Canals and the Transportation Program, by Frederick G. Fassett. Boston Transcript, March 9, 1925. p. 15.

Electrification of the American Railways, by Herbert Quick. American Academy of Political and Social Science. Annals. March, 1925. p. 78-90.

Labor Investment in Public Utilities, Address before National Association of Railway and Public Utilities Commissioners, Nov. 11, 1924, by Donald Richberg. Brotherhood of Locomotive Firemen and Enginemen's Magazine. February, 1925. p. 92-94.

Railroad Consolidation, by Eliot Jones. North American Review. March, 1925. p. 440-453.

The Transportation Department [at Yale University], by Winthrop M. Daniels. Yale Alumni Weekly. February 27, 1925. p. 678-679.

Reports to Be Presented at London Congress

The following reports to be presented before the International Railway Congress in London in June are published in detail in the February issue of the Bulletin of the International Railway Congress Association:

The Grade Crossing Situation in All Countries of the World (except America, British Empire, France, Italy, Spain and Portugal), by H. P. Maas-Geesteranus, Chief Engineer, Dutch Railway Company.

Classification Yards in All Countries (except America, Belgium, France and British Empire), by W. Simon-Thomas, Divisional Traffic Manager, Dutch Railway.

Reducing the Cost of Traction—Lubrication of Journal Boxes (report for British Empire), by Sir Henry Fowler, Deputy Chief Mechanical Engineer, London, Midland & Scottish Railway.

Train Dispatching and Train "Control" (report for British Empire), by J. H. Follows, Chief General Superintendent, London, Midland & Scottish Railway.

Fixed Signals in All Countries (except America, British Empire, Italy, Belgium, the Netherlands and Scandinavia), by M. Laigle, Chief Assistant to Chief Engineer, Southern Railway of France.

Engine Terminals (in the British Empire), by R. E. L. Maunsell, Chief Engineer, Southern Railway (England).

Joint Facilities in All Countries (except British Empire, America, France and Far East), by U. Lamalle, Director, Belgian State Railways.

New Books

The Elements of Railway Economics. By Sir William M. Acworth. New edition revised and enlarged by the author and W. T. Stephenson. Size 5 in. by 7½ in. 216 pages. Bound in cloth. Published by Oxford University Press, American Branch, New York. Price, \$1.20.

The first edition of Sir William Acworth's notable book was published in 1905. Although many valuable books on railway economics have been published both in this country and in England in the two decades that have since passed, there has been none among them that can justifiably be said to have superseded Sir William's work. The particular feature that distinguished the book was unquestionably the markedly skilful exposition of the economics of the railway rate structure, the lucid definition of the expression "what the traffic will bear," and the delineation of the limitations that should be drawn around the somewhat unfortunate phraseology of the term. Considering that this valuable portion of the book still retains its character of authority, it is good news for those who may have studied the volume in any of its earlier editions, to learn that the book has been revised and brought up to date.

Some of the book will, of course, be of secondary interest to American readers, particularly those parts dealing with the organization and operation of the English railways.

However, this is counterbalanced by the many references to conditions in America used by the author to amplify certain parts of his thesis.

The present edition retains the text of the economic argument as it appeared in the earlier editions except insofar as necessary changes were made in statements that may have given rise to misunderstandings. The data used have been brought up-to-date and more recent illustrations are used. Three new chapters are added, dealing with the operation of the English railways in the war, the new railway rates tribunal and passenger traffic.

In his preface Sir William includes the following paragraph which expresses a thought so trenchant that we prophesy it will be used as a text for many future discussions of railway management:

"The day of the old railwaymen, with their purely practical training and their rule-of-thumb methods, has passed. Railway undertakings are today organized on so vast a scale that their management is beyond the grasp of the practical man. Millions of money can be saved on English railways, for the benefit partly of the shareholders, but in much larger degree of the community at large, if the rising railwaymen of the present and the immediate future can be taught to establish and to justify their practice on the basis of sound economic theory, continuously checking the application of theory by familiarity with that which has been done or is being done or attempted in other places outside the range of their own possible individual experience. . . ."

Letters to the Editor

[The RAILWAY AGE welcomes letters from its readers and especially those containing constructive suggestions for improvements in the railway field. Short letters—about 250 words—are particularly appreciated. The editors do not hold themselves responsible for facts or opinions expressed.]

Disagrees With D. T. & I.'s Labor Policy

NEW YORK.

TO THE EDITOR:

I have read with a great deal of interest and surprise your article on Henry Ford's railroad—interest because everything which Ford does is interesting; surprise, because you apparently have the naive notion that methods in use on the D. T. & I. could be applied with success on other railroads.

Now, as one who has had some experience in dealing with men and who claims to some modest knowledge of the psychology of human behavior, I assert that there is not one of Mr. Ford's methods in dealing with the employees of the D. T. & I. which is worthy of being copied by other railroads. Real men will not stand for such autocratic paternalistic treatment unless there is some compelling motive. The compelling motive in the case of the D. T. & I., as it is in the Ford plant, is the high wage. If the other railroads and other factories should pay Ford wages, Mr. Ford would soon have to abandon his autocratic methods. It is only because Ford properties stand out in contrast to others in this one particular that his men are willing to put up with the treatment he metes out to them. And if this contrast were abolished by wage increases and an attempt to apply Ford methods elsewhere, men—that is real men, such as most railroad men are—would be free to express the revulsion which they must feel for being treated like a lot of grammar-school students.

Can you not picture to yourself the secret resentment which the engineman must feel who is required to go to work in the cinder pit? or that of the local agent, who ranks as an official in the eyes of the business men of a town, and in his own eyes as well, who is required to don overalls and paint the station? Can you imagine that the car inspector who is forced to go to work with a pick and shovel on the track is a very happy man, and that he would not gladly quit if he could make as much money where some deference was shown for the respectability of his craft? And do you think that trainmen out on the road regard the rule against smoking as something just and reasonable, against which they have no cause to complain?

There is a story of a Connecticut mechanic who, attracted by the high wages paid in Ford's plant, left his job in the East and entered Ford's employ. A few months later he was back in Connecticut asking for his old job again. The plant superintendent asked him about his experience with Ford. He replied, "Well, they gave me a wrench and I stood by and tightened one nut on each car as it moved past me. Then they thought I wasn't busy enough, so they made me jump back and forth across the floor to tighten this nut on two lines of cars as they came by. I quit before the efficiency engineer suggested that they tie a broom on me so I could sweep the floor as I went back and forth." The story may be

somewhat exaggerated, but the moral seems obvious.

Then for Ford's treatment of the unions. Do you suppose he could get away with this if all the other railroads were paying the same wages as the D. T. & I.? It seems to me that the day has come when almost everyone admits the necessity for some kind of collective bargaining. Many of the most conservative industries which have no dealing with the regular unions at least have some sort of company union or shop council. Can anyone think that it would be possible—or even desirable—for the railroads to go back to the old days of absolute managerial autocracy?

In short, are the railroads not doing just exactly right with regard to Mr. Ford and his toy when they strive in no respect to emulate him, but simply watch in amused silence his experiment, if it can be dignified by that name?

BURTON SNELL.

Would Different Methods Make Suburban Business Pay?

NEWARK, N. J.

TO THE EDITOR:

I was much interested in E. H. Lee's discussion of the Chicago terminal problem which appeared in your March 7 issue, but one of his points raises a question upon which I doubt whether all opinion would be unanimous. He says (of suburban and through passenger traffic): "As between the two, through traffic must be given the preference, because suburban and interurban passenger traffic can always be diverted to other transportation routes."

Now, I think no one would deny that if it became absolutely impossible for the railroads to handle both through and suburban business, the suburban business would have to go. But is there not a tendency on the part of many railroads to regard this time as fast approaching, without at the same time adopting measures to postpone it as long as may be? Indeed is there any limit to the number of tracks and other facilities which could be built on a given right-of-way, provided only that the traffic they were to carry was profitable enough to justify sub-surface and elevated structures?

Is not the real truth of the situation the fact that through business is generally profitable and that suburban business is not, and that the railroads are justifiably reluctant to spend money in developing facilities for the conveyance of unremunerative traffic?

But, if this is the case, why? The New York subways, which are struggling along on a five-cent fare, not being forced to pay interest on the cost of construction which was met by the municipality, would doubtless pay handsomely both for the operating companies and the municipality if they were allowed to charge a dime. Yet railroads, with investments of only a fraction as much per mile, cannot make money on even higher fares. What is the answer? Is it not that the steam railroads are, generally speaking, attempting to handle what is really urban traffic with much the same methods and equipment which they use in branch line service in sparsely populated areas?

If a rapid transit line which has to acquire its right-of-way after a city is fully developed can make both ends meet, should not the railroad which acquired its right-of-way many decades ago at a fraction of the cost do at least as well—especially since it secures a higher rate?

Moreover, if there is any money to be made in this business by the adoption of more modern methods of handling it, shouldn't the railroads at least investigate the possibilities before they throw up their hands and turn it over to the trolleys, the buses and the rapid transit lines?

COMMUTER.

Careful Firing and Safety

EAST ST. LOUIS, ILL.

TO THE EDITOR:

Here is a scrap of real news. From a news item recently published in a St. Louis newspaper it appears that automobile drivers and all other persons are warned by the Missouri-Kansas-Texas Railroad, that when approaching a crossing of the track they must be increasingly vigilant to look out for approaching trains; that the wayfarer can no longer safely depend on the locomotives always to give advance notice of their approach by throwing into the sky great clouds of black smoke.

It appears that the efforts of the officers of the M-K-T to educate firemen up to efficient "smokeless" firing have been crowned with success; or at least a sufficient degree of success to make timely a warning to all persons who have been depending on smoke clouds to give them notice of the approach of trains, and upon the absence of smoke as an assurance of a safe crossing. The crossings, it appears, *are not so safe as they were!*

Whether or not the Automobile Chamber of Commerce has entered before the Interstate Commerce Commission a complaint against this action of the railroad, in educating its firemen, and thus throwing a greater responsibility on the automobile driver, is a point not touched upon in the news item referred to.

PROGRESSIVE.

Improving Correspondence

NEW YORK.

TO THE EDITOR:

The article in the *Railway Age* of February 28, page 524, by George E. Schneider on the possibilities of improving railroad correspondence suggests a fertile field for discussion. It is quite obvious that many letters from railroads do not carry the proper message, as well as the desire not only to attract continued patronage, as Mr. Schneider points out, but to promote good will and friendliness on the part of the recipient.

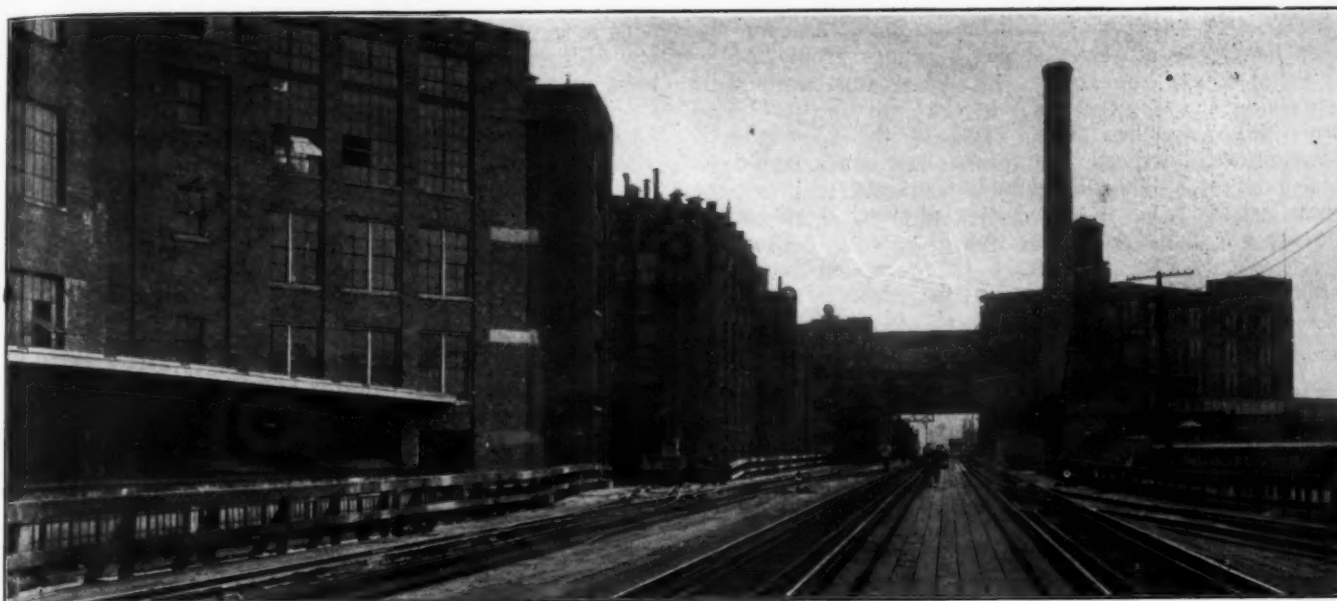
It is of interest to note also that the higher the railroad officer, the more friendly and personal are the letters which he writes. The question which is brought up by this article is one which has been discussed frequently during recent months, particularly by non-railroad men. The following item, which appeared in *The Christian Science Monitor* of February 24 under the caption "Dear Sir" and "Yours truly" bears on this subject:

"A railroad publicity officer and a prominent consulting engineer recently discussed means of promoting good will. The latter said, 'When I receive one of the coldly formal letters from a railroad man, starting with "Dear Sir" and ending with "yours truly," it has the effect of a slap in the face.' He went on to say that a cordial friendly manner of addressing patrons of a road in corresponding with them would have a most helpful effect.

"The general railroad rule is to use the same form of reply as is used by the person addressing a railroad officer. Occasionally this is deviated from. If it were deviated from to the extent of less formality, the results could not but be beneficial, since business in general is getting away from the thought of coldness and unfriendliness in correspondence.

"Clerks writing letters of this character and signing their superior's name may incur ill feeling on the part of a recipient, although the subordinates are merely following their superiors' practice in the use of a salutation and conclusion. The Pennsylvania System is one of the few roads which make a standard practice of addressing their correspondents in a manner intended to promote understanding and good will."

FRANKLIN SNOW.



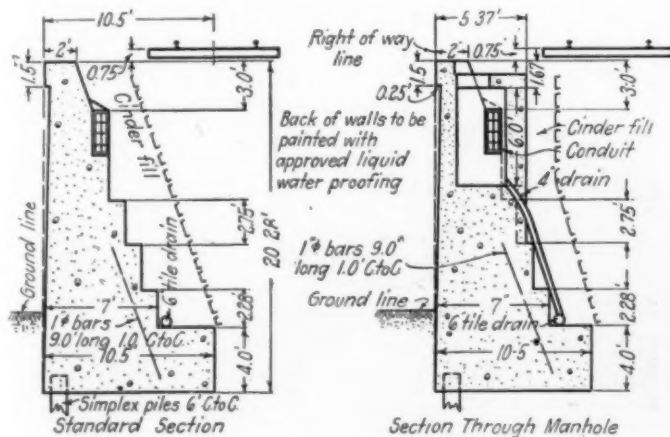
The Three-Track Trestle 6500 ft. Long Was Provided With a Plank Floor and Railings to Facilitate Switching

Large Concrete Plant Employed on Track Elevation Work

Special hopper cars deliver material to forms over distance of 9,000 ft. on Cleveland project

THE construction of a three-track pile trestle 6,500 ft. long and the mixing of 65,000 cu. yd. of concrete for structures distributed over a distance of 9,000 ft. are the outstanding features of the track elevation work now being carried on by the Pennsylvania in

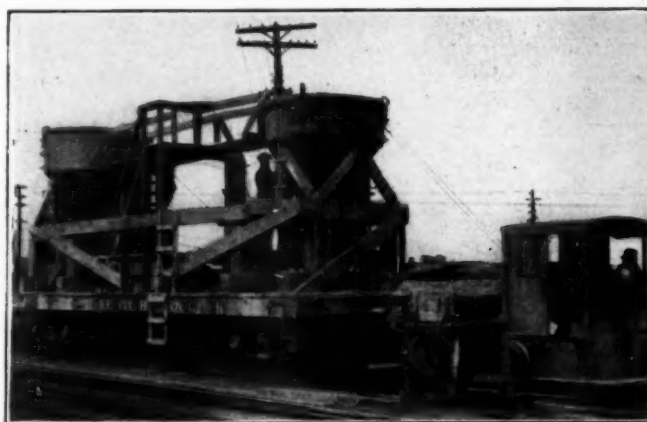
as Cleveland Track Elevation—Group 3, comprises an extension to the southeast from the end of previous grade separation on the main line into the city, extending from the lake front to Cedar avenue, the southernmost street crossing previously separated. The new work extends from this point for a distance of 9,000 ft. to an undercrossing of the Cleveland & Youngstown where a required



Typical Retaining Wall Sections

Cleveland, Ohio. These and other methods pursued in the conduct of the construction represent expedients adopted to meet the conditions imposed in the separation of grades on a busy line through an intensively developed industrial district where the maintenance of switching service to adjacent industries was not the least among the problems presented.

The present project which is designated by the railroad



The Concrete Is Delivered in Special Cars Equipped with Two Seven-Yard Buckets

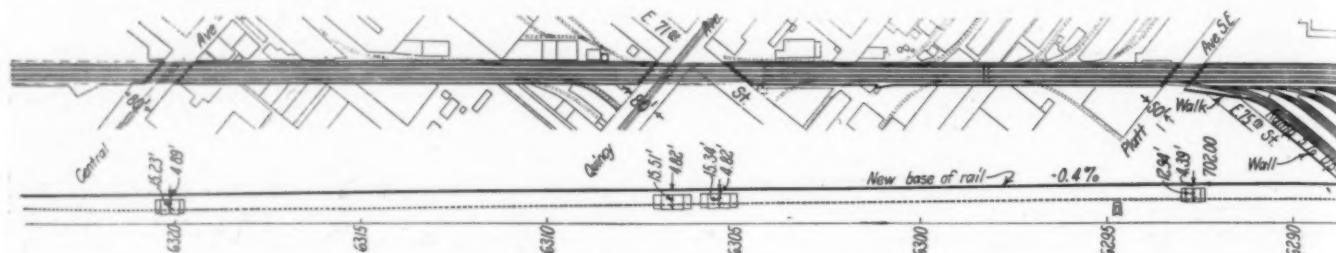
underclearance of 21 ft. 8 in. fixed the southern end of the track elevation runoff. Between this point and the northern end of the work the new track profile has been established by the requirements of the necessary separation of grades at the street crossings and a crossing over

the tracks of the New York, Chicago & St. Louis. The clear headroom at street subways ranges from 12.5 to 15 ft., of which from 0.68 ft. to 5.65 ft. was obtained by depressing the streets except in the case of the Holton street subway which is so close to the Cleveland & Youngstown overhead bridge that the track could be raised only 4.75 ft. and made it necessary to lower the street grade 15 ft. However, the physical conditions at the site are such as to favor this plan.

The Nickel Plate crossing is being carried out under a plan calling for the lowering of the tracks of that road

tension in the other. The ducts are encased in concrete and are broken at intervals of about 400 ft. by manholes built into the walls. The rear projections of the wall footings carry six inch drain tiles to afford drainage to the fill in conjunction with a blanket of cinders approximately three feet thick which will be placed against the backs of the walls when the filling is done. The backs of the walls are being covered with a coat of Karnak damp proofing. The drains are connected to sewers at the street intersections.

Foundation consisting of sand with several sub-strata



South Half of the Construction District

as a part of a grade separation project, the Pennsylvania tracks being raised 15.73 ft. and the Nickel Plate tracks lowered 10.6 ft. Until the grade separation project of the latter road is carried out the undercrossing of the Pennsylvania will be effected by a temporary sag in the profile.

Embraces Seven New Street Subways

The track elevation embraces new street subways at seven streets in addition to the reconstruction of an existing subway at Grand avenue, which was built in 1912, without change in the track grade, at a point where the level of the streets is considerably below that of the track. The track floor of this structure is being raised to increase the headroom from 10 ft. to 13.7 ft.

With the exception of this subway and the one at Holton street, all street undercrossings are at angles of nearly 45 deg. with the railroad. This condition, together with the requirement imposed by the city that intermediate supports be placed only at the curb lines, imposed a difficult problem in the design of the subway superstructures. With streets having a clear width between curbs up to 50 ft. the span lengths in the direction of the tracks reach a maximum of 65.6 ft. and preclude the use of longitudinal girders between tracks. Accordingly, the design adopted is one with beams spanning perpendicular to the streets with skew ends along the two sides terminating in fascia girders. Typical designs of the roadway spans embrace the use of 26-in. 160-lb. Bethlehem beams spaced 30 in. center to center with lighter construction in the side walk spans. These floor beams will be covered with concrete slabs having a maximum thickness of 8 in. and will be covered with a membrane water proofing and protection to receive ballasted track.

Previous to the inception of the grade separation work the Pennsylvania right-of-way was occupied by three tracks but as there is sufficient width for an additional track the track elevation is being designed for four tracks—two main tracks in the center with a running track or switch lead on either side. This plan requires the construction of full height retaining walls along both sides of the right-of-way for nearly all of the distance except to the south of the Nickel Plate crossing where additional width of right-of-way permits part of the embankment height to be disposed of in side slopes. The retaining walls are of the mass type with a stepped back, the top step on each side supporting two four-way vitrified tile conduits for electric wires—low tension in one wall and high

of quicksand called for the amplification of natural foundations for the retaining walls by a row of Simplex concrete piles 16 ft. long, spaced 6 ft. center to center under the toes of the retaining walls. These piles were driven in advance of the other construction operations.

Traffic Imposes Serious Problems

The line involved in the track elevation project carries a heavy traffic. In addition to 15 regular passenger trains



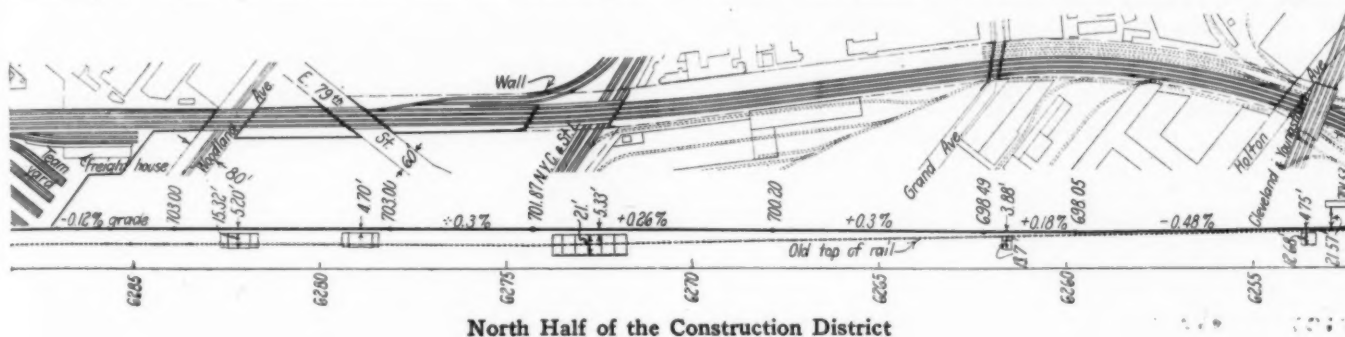
The Material Bins and Elevating Tower

in each direction, transfer trains to terminals and interchange and switching service to the numerous industries, the line is subjected to a large number of light engine movements. This condition positively required the maintenance of at least two main tracks in continuous service throughout the entire construction period. Another requisite imposed in determining the construction procedure was the need of maintaining effective switching service

to the industries with as little interruption as possible. A study of the problem led to the conclusion that it would be impractical to undertake the construction of the retaining walls and subway structures on the narrow right-of-way north of the Nickel Plate crossing until traffic could be transferred to the new grade on trestle construction.

Accordingly arrangements were made to build two single-track trestles on the west half of the right-of-way while two tracks were provided on the east half for the handling of traffic on the surface until the trestles were

The completion of this double-track trestle permitted the transfer of traffic to the upper level except for the switching service to industries along the east side of the right-of-way, but as the plan for handling the concrete construction involved the use of a track on the upper level and as switching would be greatly expedited by having all tracks on the same level, the third trestle was constructed immediately, since this afforded opportunity for assigning one or the other of the two outside trestle tracks to the construction operations, as conditions demanded.



completed. Train movement was then transferred to the trestle tracks, following which a third trestle was built to the east of the first two trestle tracks. As seen in the photograph, these trestles were provided with plank floors throughout with railings along the two sides, to afford maximum safety and convenience for trainmen in handling the switching which is almost constantly under way within the territory in question.

The piles for the trestles were driven by a track driver from the surface track which was taken up as the driver backed away from the completed bents. The deck was erected with the aid of a bridge derrick car operated on

As the project calls for four tracks on the new level, the fourth track will be placed along the east side of the right-of-way as soon as the subway superstructures can be completed along that side and sufficient of the fill has been placed to provide adequate support for the track.

The construction of the trestles also solved the problem of the disposal of the material from the excavation for the footings of retaining walls and abutments. With the tracks all removed to the upper level it was possible to dispose of the spoil in the space under the trestles, whereas with tracks in service on the lower level, practically no space would have been available for such use.



Exact Quantities of Sand and Stone Are Measured into Small Material Cars from the Aggregate Bins

the adjacent track. The trestle for the west track was completed first, so as to permit of the most expeditious connection with trestles for industry tracks being constructed simultaneously by the adjacent industries. As a result the interruption of service to the industries did not exceed three weeks, being considerably less than this in many cases. After completing the trestle for the first track the operation was duplicated for the second track. The building of the three trestles 6,500 ft. long involving the driving of about 5,800 piles, required eight months, being started on April 25, 1923, and completed on December 23.

The project entails the mixing and placing of about 65,000 cu. yd. of concrete, nearly all of which is being mixed at a central concrete mixing plant located near the intersection of Seventy-fifth street and Platt avenue on property of the railroad used as a local freight station and team yard which will be reconstructed in connection with the grade separation work to meet the requirements of the high level line. This location was developed by the contractor for a plant for mixing of the concrete and its transportation to the forms for the structures extending over the entire construction district.

A plant to fulfill these requirements entailed provision

for the convenient delivery of the aggregate and cement in cars, adequate storage capacity, economical handling of the materials from storage to the mixer, expeditious delivery of the concrete from the mixer to concrete cars, the transportation of the cars to the forms and the depositing of the concrete into them. Each operation and the facilities provided for it will be described in turn.

The materials are received on a trestle with standing space for five cars. For the first car length from the clearance point, this trestle is of standard construction spanning the working space at the mixer. For the other four car lengths it embraces storage bins for the sand and stone, having their bottoms supported about six feet above the ground level. The cars of sand and stone are spotted over these hoppers or bins while cement cars are placed directly over the mixer platform where spouts leading down through the roof of a cement house erected alongside afford effective means of receiving the sacks of cement into storage or for delivery direct to the mixer on a four wheel truck. The cement is dumped as needed into two small bins alongside the mixer hopper, each holding four sacks of cement or enough for one batch.

The mixer is located in a pit depressed a sufficient amount to receive its charge from a hopper set between the rails of a three-foot gage track laid at ground level on the axis of the trestle and extending under the aggregate bins. This track is used for the operation of two one-yard hopper cars, with separate compartments for sand and stone, propelled by a two-ton locomotive built by the Brookville Truck and Tractor Company, Brookville, Pa. It consists of a Ford engine mounted on a rail truck. This train with each hopper car loaded through under cut gates with the proper quantity of stone and sand for one batch is run to the mixer hopper where one car is dumped at the same time that one of the cement bins is emptied into the hopper.

This charge (for 1-3-6 concrete) is run directly into the mixer after which the hopper gate is closed and the second batch is placed in the hopper ready to re-charge the mixer after the first batch is released. Thus the material train makes a round trip for every two charges of the mixer. The concrete is delivered to the concrete cars with the aid of a 105-ft. Lakewood steel tower and spout and a receiving hopper mounted on a gallows frame over two of the tracks. This hopper and the one at the top of the tower provide eight cubic yards storage between the mixer and the cars, thereby greatly reducing the time necessary to charge the concrete cars.

The concrete cars, of which two have been provided, consist of flat cars on which two Stange buckets of seven cubic yards capacity each have been erected in suitable frames with spouting attachments for discharging the concrete on either side. Each car is handled by a seven-ton Plymouth standard gage gasoline locomotive. The maximum line haul from the mixing plant is 4,000 ft.

The normal force for the operation of the concrete plant is as follows:

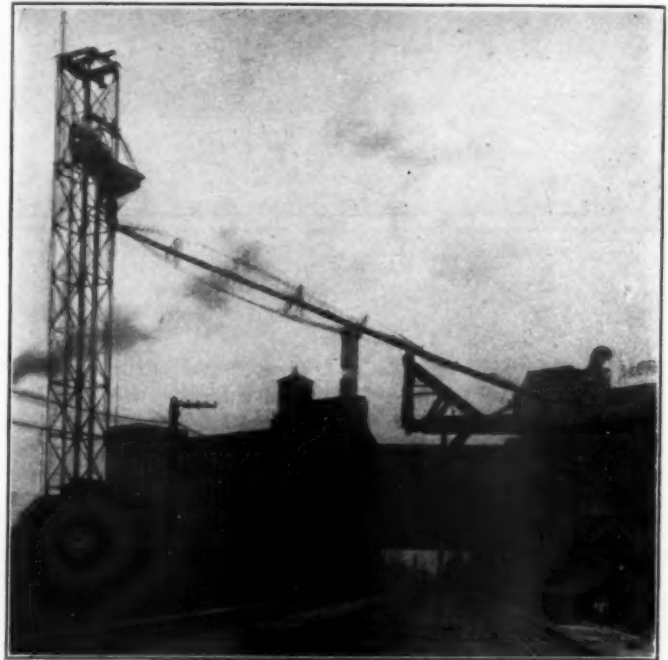
- 1 foreman
- 2 men on the bins dumping cars
- 2 men on the aggregate train
- 6 men in the cement house unloading cars, piling sacks or charging the mixer
- 1 mixer operator
- 1 fireman
- 1 towerman
- 2 train crews each with { 1 motorman
- 4 men in the forms { 2 hopper car men

With this force the plant has mixed and placed an average of 400 cu. yd. of concrete per 10-hour day or from 9,000 to 10,000 cu. yd. per month of full time operation.

Another part of the old freight yard is used for the fabrication of retaining wall forms which are built in units of panels for a 16-ft. length of wall. It has been found possible to re-use these panels 20 times.

Fill to Be Placed Later

The project will require the placing of 190,000 cu. yd. of fill. Except for that part of the runoff at the south end where the tracks were raised under traffic, this will be placed after the retaining walls and subway abutments



A Spout Delivers the Concrete to a Receiving Hopper from Which It Is Dumped into the Car Hoppers

have been completed and will be the last part of the work to be undertaken.

The project is being carried out under the direction of Robert Trimble, assistant chief engineer, Pennsylvania System, Pittsburgh, Pa., with C. A. Moore, construction engineer in charge at Cleveland. The work is being done under contract by the H. E. Culbertson Company of Cleveland, with J. H. Anderson as superintendent in charge. The estimated cost of the work is about \$3,500,000, the contract with the city providing that the city shall pay 35 per cent and the railroad 65 per cent of all expenses incurred in the grade separation except such as are required for any increase in the railroad's facilities provided in connection with the project.

SAFETY-FIRST FOR CHILDREN.—Children make up the largest group of trespassers on railroad premises; and, reviewing the conditions and circumstances that contribute to this situation, the Northwestern Pacific has issued an illustrated poster headed "HELP US SAVE THE CHILDREN'S LIVES." Facsimiles of the poster have been used by local newspapers. Some of the juvenile trespassers are children of employees of the railroad; and to educate these (and their parents) a prize was offered for the best essay on "Why Children Should Keep Away From Railroad Premises." This was won by Merle Haynie, twelve-year-old daughter of a conductor. The main message of the poster, aside from the pictures, is the following:

KEEP YOUR CHILDREN
AND OTHER PEOPLE'S CHILDREN
AWAY FROM RAILWAY TRACKS
AND OFF OF RAILWAY PREMISES

Directing Train Movements by Signal Indication

Eighteen papers presented various phases of this subject at Chicago last week

THE movement of trains by signal indication, eliminating written train orders, received primary consideration at the annual convention of the Signal section of the American Railway Association at the Drake Hotel, Chicago, on March 12 and 13. Eighteen papers on this subject were presented on the second day, both sessions of which were devoted entirely to their consideration and to the presentation of the report of the Committee on Signal Economics. These papers brought out a vast amount of information on this phase of train operation. The interest of operating and engineering officers in this phase of signaling was evidenced by the attendance of a relatively large number of men from these branches of railway service.

On the first day the reports of eight committees were presented in addition to two papers on train control subjects:—The Relation of Air Brakes to Train Control, by G. H. Wood, supervisor of air brakes, Atchison, Topeka & Santa Fe, and Turbo-Generators for Locomotive Lighting and Train Control, by J. J. Kennedy, electrical engineer, Pyle-National Company, Chicago.

The attendance at the convention equalled that of former years, more than 560 men registering.

After calling the convention to order, W. M. Vanderluis (I. C.), chairman of the section, referred to the fact that in spite of the attention which the railways were forced to give to train control during the past year in compliance with the orders of the Interstate Commerce Commission more automatic signals and interlocking plants had been installed than in any year since 1919. In a suggestion for the future, Mr. Vanderluis called attention to the necessity for the development of a uniform system of train control, the desirability of training young technical engineers for signal work and the necessity for collecting information on the braking rates of passenger and freight trains.

George M. Basford of the G. M. Basford Company, who was the organizer and first secretary of the Railway Signaling Club in 1895, also spoke briefly.

A Summary of Papers Presented

The first paper presented on the general subject of train operation by signal indication was prepared by W. Y. Scott, signal engineer of the Boston & Maine, and described the early signaling of the Salem tunnel which was built by the Eastern Railroad Company, and opened to traffic in 1839. Mr. Scott explained the methods of operating trains through this tunnel since that time and described the various methods of signaling that have been used to expedite traffic.

The three-position train order signal as used to advantage on the Erie railroad was described by M. A. Baird, signal engineer.

The operation of trains by signal indication without train orders is not a new idea as was explained by W. M. Post, superintendent telegraph and signals of the Pennsylvania. In 1882 a system of manual block signaling consisting of five blocks was installed on the various tracks approaching the Ohio River bridge at Louisville,

Ky. Standard time had not as yet been established when this system was put in service and as several roads operated over this territory the use of train orders was out of the question. A mnemonic board appearing like a cribbage board was designed at the time so that the dispatcher could, by means of pegs, have a visual record of the location of the trains in the different blocks. During all of this period since 1882 there has never been an accident due to any fault of the signaling system or misinterpretation of the indications.

Mr. Post presented another paper explaining how track capacity had been increased on some 45 different short stretches of the main lines of the Pennsylvania. In the majority of these cases one or more tracks of a multiple track system was signaled in a reverse direction in order that run-around moves might be made against the normal direction of traffic so as to utilize unoccupied tracks to relieve congestion when the preponderance of traffic was in either direction. In a number of instances a comparatively small expense for additional signaling has so increased the track capacity that expenditure for additional tracks has been postponed for 10 to 20 years.

The operation over a congested territory in the vicinity of the Fort Worth, Tex., terminal has been materially expedited by the installation of an illuminated track diagram in the signal station covering a territory 8 miles long. By the means of train signs switching crews are informed in advance when the through trains are approaching and can clear the tracks in plenty of time.

The Central of Georgia has an interesting installation of automatic signals on about 5 miles of single track near Macon, Ga. In addition to through train movements there is helper service for westbound freight trains and considerable switching from industry tracks over this line. In spite of these complications all train movements are handled by signal indication without written train orders. Notwithstanding the increased traffic this signaling system will postpone the requirement for second track for several years.

In order to show what automatic signals have done W. F. Follett, assistant signal engineer, New York, New Haven & Hartford has made an extensive study of the history of the Central of New England. According to official records an installation of automatic signals on 23 miles of line installed in 1909 so relieved congestion and increased track capacity that the building of a second track on 13 miles of this section was postponed for five years. The total cost of signals, fixed charges, maintenance and operation for this period was \$43,725. Deducting this amount from the total saving produced by the installation showed that the signaling equipment netted a saving of \$314,540 during the five-year period. This saving was 44 per cent of the total cost of the double track.

Train operation by signal indication in either direction on either track of a two-track road or the middle track of a three-track road was described by H. G. Morgan, signal engineer of the Illinois Central.†

The development and progress of signaling on the

†See *Railway Age*, for March 3, 1923, pg. 498 and March 14, 1925, pg. 733.

Chicago, Burlington & Quincy was included in a paper by J. B. Latimer, signal engineer of this road. In the absence of Mr. Latimer, W. F. Zane, assistant signal engineer, presented the paper.

In certain cases it is impracticable for the Delaware, Lackawanna & Western to increase the number of tracks approaching its Hoboken, N. J., terminal. Due to the increased passenger traffic it was necessary that the capacity of existing tracks be increased. Signals were therefore installed to govern train movements in either direction on several of the multiple tracks. J. E. Saunders, signal engineer of the Lackawanna explained the method of operating trains and stated that an expenditure of \$90,000 eliminated the necessity of spending millions of dollars to provide additional tracks.**

In order to eliminate congestion on 4.4 miles of line the Toledo & Ohio Central estimated that it would cost \$100,000 to provide more tracks. B. J. Schwendt, superintendent of signals of this road explained in detail how the installation of signals costing \$900 had increased the traffic capacity and produced net savings of \$6,090 per year per mile of road. This is at the rate of 1,629 per cent on the investment.

H. S. Balliet, signal engineer of the Grand Central Terminal explained how an investment of only \$90,000 for signaling equipment to permit either inbound or outbound movements on track No. 4 approaching the Grand Central Terminal has facilitated traffic and relieved congestion. The cost of providing an additional track on this busy route through the city of New York is prohibitive and the savings brought about by this additional signal cannot be given in money values.

On the Chesapeake & Ohio there are several short stretches of single track and double track through mountainous territory where the cost of providing additional tracks is not warranted. The signal department of the C. & O. devised a unique traffic locking signaling system by which train movements are governed over these territories without written train orders.* This has so reduced train delays in this territory that in spite of the increased traffic, necessity for increased track has been postponed for several years. The saving in time of train operation alone nets over 300 per cent on the investment.

George S. Pfisterer, signal engineer of the Nashville, Chattanooga & St. Louis stated that the N. C. & St. L. had been using a system since 1889. This installation gave successful results for a period of 24 years after which time second track was installed. In 1911 automatic signals were installed on 11 miles of line over the Cumberland mountains, resulting in the elimination of written train orders.† There are 234 train movements each day over this territory. A remote control switch machine was installed to handle one of the switches in this territory in 1915. The complete installation as in operation today shows a saving of 34 per cent in time of operation of trains aggregating 1,022 hours per year, which, figured at \$24 per freight train hour, equals \$24,528 per year.

Colonel Azel Ames, sales engineer of the Kerite Insulated Wire & Cable Company, presented a paper pointing out the similarity between a railroad organization and a military organization. He stated that the army semaphore code gave 28 aspects with two arms pivoted in the center, and said that semaphore signals for railways could be designed with all the indications desired with three lights of the same color. A diagram was shown illustrating the possibilities in this respect.

H. W. Griffin, Union Switch & Signal Company, presented a paper entitled, "Eliminating the Train Order." Mr. Griffin traced the history of operating trains by train

orders and spoke of the difficulties of operating trains with the "31" train order as compared to the more flexible "19" order. He then explained the auto-manual traffic controlled system, in which train movements were controlled between passing sidings, the signals being controlled manually by operators and automatically by continuous track circuits. He then proceeded to give a complete set of definitions covering the apparatus required and explained the requisites for such an installation.

C. H. Morrison, signal engineer, New York, New Haven & Hartford, explained the operation of trains by signal indication over bridges where gauntlet track is used on double track lines. The protection is entirely automatic, no attendant being required. On one bridge, over the Housatonic river the traffic averages 16 trains per day. He also explained that the signaling of the four-track line through a cut at New Haven has so been devised as to materially increase the track capacity to meet peak traffic such as is occasioned by the shuttle trains handling the traffic to and from the football games. In this case land values prohibit the construction of additional tracks; therefore the saving produced by the signaling cannot be calculated.

Several of the papers referred to above are presented in abstract below. Others will be abstracted in succeeding issues.

Signals Pay Half the Cost of Second Track

By W. F. Follett

Assistant Signal Engineer, New York, New Haven & Hartford, New Haven, Conn.

The Central of New England was among the first railroads to operate trains over single track by signal indication in lieu of train orders. In 1908, traffic reached a point where additional facilities were required over that part of the Central New England between Highland, N. Y., and Maybrook. The distance from the west end of Highland Yard to the east end of Maybrook Yard is 23 miles, of which 13.2 miles were at that time single track, the distance between the single track sections being seven miles. These single track sections limited the volume of traffic over the whole division.

W. J. Backes, then chief engineer of the Central New England recognized the fact that after a growing road was double tracked, it would have to be signaled and that by installing signals for the single track, properly located for future double tracking, the double tracking not only could be deferred, but that a large part of the actual investment for signals would be permanent for use after the double track was built. A signal system was installed covering both the single and double track sections, the single track section being arranged for controlled manual block governing opposing movements with permissive automatic block for following movements. Upon this basis, the double tracking was deferred for about five years.

These signals were put into service on November 10, 1909, but the operating officers at that time were skeptical about changing the method of operation from train orders to signal indication. The operation of the signals, however, was so satisfactory that, effective some 18 days later (November 28, 1909), authority was given for all extra trains, except work trains, to run extra with the current of traffic without running train orders in the double track sections, the signals to govern train movements on single track sections regardless of time-table rights.

The operating instructions, at that time, also provided

**See *Railway Age*, for December 23, 1922, pg. 1185.

*See *Railway Signal Engineer*, April, 1921, pg. 129.

†See *Railway Age*, April 19, 1924, pg. 972.

that any movement against the current of traffic on double track would be governed by train orders only. Trains so moving must have authority by train order to pass a low fixed signal at the end of the double track. The signals for the normal direction of traffic at such points controlled movements with the current of traffic moving from the double track to the single track. Effective November 18, 1909, two of the intermediate registering stations were eliminated.

At the time these signals were put into service between Highland and Maybrook, there were eight scheduled passenger trains daily and three scheduled freight trains. The balance of the freight train movements were handled extra and aggregated an average of from 41 to 46 trains per day. In order than an idea may be obtained of the sentiment of the operating officers at the time this method of train operation was put into effect, I quote from a letter written on March 10, 1910, by O. M. Laing, who was then general superintendent. Mr. Laing states: "I believe, from the experience we have had in the operation of this signal installation, that it affords almost absolute protection against head-on collisions and reduces to a minimum the possibility of rear-end collisions. On a conservative estimate we are of the opinion the volume and efficiency of the movement through the signals, was increased 25 per cent and that the running time of extra trains has been reduced one hour.

"Prior to the installation of the above signals between Highland and Maybrook, the movement became so heavy at times that it was impossible for dispatchers to keep up with their O.S.'s, which resulted in trains becoming bunched and movement congested. Now the responsibility is largely carried by the signals and at this writing, they are showing no evidence of wear and tear. Although the dispatchers keep the movement lined up with the operators, as a general thing, the operators are doing this without specific instructions and in through movement of fast freight, as a general thing, those trains do not stop between Highland and Maybrook, or vice-versa."

Accurate data are not available to approximate the total economic advantages accruing from the signal system which permitted the deferring of double tracking for a period of five years. However, neglecting such values as were obtained by better operation, the saving in freight train hours, the releasing of rolling stock for other service and the saving in overtime of crews, the records indicate a very substantial profit, as will be noted by the following statement. The values given in the following statement are, in most part, taken from the records, but where the records were not available, approximations have been made upon prices prevailing at the period in which this installation was made, namely:

(1) Estimated cost of signaling for the single track section, based upon the actual cost of the total installation (investment).....	\$15,000.00
(2) Fixed charges estimated—	
(a) Taxes, 2 per cent.....	\$300.00
(b) Interest, 6 per cent.....	900.00
(c) Depreciation and major repairs, 5 per cent..	750.00
Total fixed charges for one year.....	1,950.00
(3) Minor repairs and operation—	
Material	
(a) Signal lighting, estimated.....	375.00
(b) Battery supply, estimated.....	504.00
(c) Bond wires, insulated joints and minor repairs, estimated.....	96.00
Total minor repairs and operation for one year.....	\$975.00
Labor	
(a) One maintainer, per month.....	\$85.00
(b) One batteryman, per month.....	60.00
(c) Two lampmen, per month.....	90.00
Total per month.....	\$235.00
Total labor for one year.....	\$2,820.00
Total for minor repairs and operation for one year.....	3,795.00
(4) Total cost of fixed charges, minor repairs and operation, one year Item 2 plus Item 3.....	5,745.00

(5) Total cost of fixed charges, minor repairs and operation for the five-year period, Item 4 times 5.....	28,725.00
(6) To have double tracked the road at the time the signals were installed, based upon the actual cost of double tracking five years later (investment).....	704,414.70
(7) Charges saved per year by deferred double tracking—	
(a) Taxes, 2 per cent.....	\$14,088.29
(b) Interest, 6 per cent.....	42,264.88
(c) Maintenance material and labor, est.....	15,606.00
Annual saving.....	71,953.17
(8) Charges saved by the five-year deferred track installation, Item 7 times 5.....	359,765.85
(9) Estimated cost of salvaging manual controlled instruments and connections incident to double tracking.....	1,500.00
(10) Net saving after deducting salvage material, Item 8 minus Item 9.....	358,265.85
(11) Total cost of signal investment, fixed charges, maintenance and operating charges, Item 1 plus Item 5.....	43,725.00
(12) Net saving after deducting total cost of signal installation, fixed charges, maintenance and operation, Item 10 minus Item 11.....	314,540.85

It will, therefore, be noted that the net saving was sufficient to defray all expenses of the signal installation, maintenance and operation for the five-year period and net approximately 44 per cent of the total cost required to double track.

Dispatching Trains by Signal Indication

By Stanton Ennes

Formerly President and General Manager, Wheeling & Lake Erie

Running trains by signal indication instead of train orders, substituting signal indication for train order, presents the biggest opportunity for reducing costs offered the railroads in years. That's a pretty broad statement, but I make it with a very fair knowledge of what is being offered the carriers in the way of improvements to locomotives, cars and track, and I repeat it with emphasis that the facility you are now discussing—substituting signal indication for train orders—will do more to put and leave money in the treasuries of your companies than anything now offered the railroads and the problem and opportunity is peculiarly yours.

Few people other than those who have had actual experience in moving trains understand or appreciate the intricacy of train rights and the details of advancing trains by train order.

The securing of the superior train, sending the order to all concerned, getting the acknowledgment, repeating it, reading it to the operator by the conductor, carrying it to the engineer, reading it to the conductor by the engineer, arriving at a mutual understanding of their rights and all before it can be acted on.

When the requirements of the trains can be anticipated and the trains' orders issued in advance, this detail need not delay them, but it is often impossible to tell in advance when a freight train will be ready and in a discouraging number of cases so much time has been consumed getting the order that the train cannot make the move and clear some superior train, and the orders must be annulled or torn down and built up again, repeating the same routine.

Furthermore, and this does not appear in any record, only the train dispatcher knows how often he lets trains lie at sidings because by the time he could get out the order the train could not clear some superior train at the next siding, when again if it could move without this delay he could advance it at least one siding often making several hours difference in reaching the distant terminal.

Neither do many appreciate that these delays are progressive and that the ratio multiplies faster than the traffic. On light lines the necessity for train orders and

the number of orders per train are negligible, but as the number of trains increases, the necessity for train orders increases and at an even greater rate, and so rapidly that in many places double track has been imposed long before the volume of traffic justified the expense.

There are doubtless some here who are asking themselves why the necessity for all of this red tape now that you have automatic signals. If this delay is so expensive, why continue it? Why not simplify the system and cheapen the operation in that way rather than assume the expense of installing additional facilities; and the answer is that these details were all, every single one of them, developed in the interest of safety following accidents and years of study.

You must understand that what I have so briefly outlined are but a few of the highlights of the development of years and that for the first 70 or 80 years of railroading, many experienced operating men were constantly at work on this problem of providing ways and means to move first with safety and then with reasonable dispatch, trains on single track railroads.

However, even this outline shows the principle around which train rules are built. First, clear the main track and forbid its use except on proper authority; then as trains are authorized to use it, protect them from one another and at the same time provide a way for them to find their own way about by giving them different values—i. e., superiority by class, by direction and by train order plus rules requiring inferior trains to clear superior ones.

The makers of these rules that have done so much to make transportation safe and practical, the makers of what we know as the Standard Code of Train Rules, have never had a tithe of the credit due them. For profound study of the thing to be done, of conditions to meet, of ways to meet them, of rules simple and explicit, the Standard Code has few equals.

You must remember, too, that the later generation of these rule makers are still in the saddle, largely as executives, and that their fellow executives have grown up in the same school and it follows that anyone offering a substitute for any part of these tried and proven methods of handling trains must know his subject and have something of real merit to offer.

This brings us to the question of what you have to offer as an improvement. Something as safe as the double order system, which is sponsored by the A. R. A. for handling trains on single track, plus the protection offered by modern automatics, and of course you would choose nothing less.

Can you meet these standards? Have you a substitute for train orders to offer your companies that will preserve all of the safety and eliminate the delays? And the answer is that with the help of the signal companies you can do both. In fact, you can do more, very much more. You can make lap orders mechanically difficult if not impossible, and if you care to go still further and include train control, you remove the last vestige of an excuse for train orders.

Duplex Signaling of Fourth Track Solves Grand Central Problem

By H. S. Balliet

Signal Engineer, Grand Central Terminal, New York

With the Grand Central Terminal at one end and the two four-track divisions and a large storage yard at the other end of the 5-mile four-track system we find an interesting railroad operation as a basis for this study.

In this 5-mile territory are located a tunnel, a viaduct over the city streets, two important through and suburban passenger stations for the use of the patrons of the New York Central and New York, New Haven & Hartford, an important four-track drawbridge over the Harlem River and a very important four-track junction and yard for commissary and classification passenger use. Movements on all of the tracks within this four-track area are handled by signal indication entirely. The trains are operated by direct current electric propelled locomotives and multiple-unit equipment for both railroads.

The signal system is designed to meet the train schedules which require a very close headway. The scheme in effect comprises several power interlocking layouts and color-light signals and three-position upper right hand quadrant semaphore signals.

No. 4 Track Now Signaled for

Both Inbound and Outbound Moves

Operating conditions have changed so that it was considered prudent to provide ways and means to meet the increase in traffic demands. Studies of the conditions existing on these four tracks brought about the conclusion that one track, viz., the one numbered 4, should be provided with a signal system for both in and outbound traffic, which method would afford the relief sought.

The clearance problem required careful study and analysis and resulted in the use in the turned areas of colored-light signals giving either two or three indications and in the territory beyond semaphore signals located either over or adjoining the track either to the right or to the left of the track to meet the problem which was also restricted by the requirement that a limited number of signal bridges only might be used.

The fourth track provides the most acceptable means of avoiding the grade crossing at signal station "MO", readily and eliminates delays which are naturally encountered. Any one or the other tracks of this four-track system would not have so satisfactorily avoided the conflict in traffic movement over the grade crossing either from four to eight tracks or vice versa. This plan of operation was established in July, 1924.

Considering the large amount of traffic that is moved outbound from the Grand Central Terminal and the congestion which intervenes during certain periods of operation on account of traffic requirements it is necessary to provide methods of handling the public at the intervening passenger stations located on this line without undue confusion so that the revenue traffic is run outbound during certain established hours. This track is also used for trains as required to give relief to movements from the Grand Central Terminal at 42nd street to the storage yards at signal station "MO".

The question of flexibility of operation within this territory has been discussed from several angles. It is difficult to institute more tracks on account of the physical conditions prevailing. Probably a fifth track will be of sufficient benefit. No estimates are produced as to the approximate cost. The signaling on track 4 cost approximately \$90,000. No increase in maintenance or operating forces was required. The only additional costs that are involved are those which will accrue for the current supplied to operate the control circuits and illuminate the signals.

The advantages gained by this installation are: (1) Making available track 4 for run around movements; (2) The saving of accumulated delays during peak load periods on the existing two outbound tracks; (3) The schedules have been made more flexible by this arrange-

ment and the delay to certain trains, i.e., those routed over this track, eliminated.

Other Papers and Reports

Eight committees of the association presented reports on Tuesday. The Committee on Highway Crossing Protection submitted 17 revised requisites for highway crossing signals, covering both flashing light and wigwag types, which requisites were accepted for submission to letter ballot superseding material now in the Manual. The Committee on Mechanical Interlocking presented specifications for electro-mechanical interlocking machines which were also accepted for submission to letter ballot for inclusion in the Manual. The Committee on Instructions presented instructions for the maintenance and operation of nickel-iron storage batteries and caustic soda primary batteries which were accepted for submission to letter ballot. Train control was the subject of the major portion of the report of the Committee on Signaling Practice, which report favored the elimination of wayside signals in train control territory. The report was accepted as information.

The Committee on Designs presented revisions of ten drawings and also drawings for six new standards, which were accepted for submission to letter ballot. The Committee on A. C. Block Signaling presented a report recording historical data pertaining to the use and the various methods of charging storage batteries for the operation of railway signal apparatus, which report was accepted as information. The Committee on Chemicals presented specifications for hard fibre. The Committee on Overhead and Underground Lines submitted a report on specifications for wood poles and steel tubular poles, conductors, rubber insulation, magnet wire and cables. Five co-operative reports issued jointly formed a part of the work which was submitted by the committee.

The Relation of the Air Brake to Train Control

G. H. Wood, supervisor air brakes, A. T. & S. F., discussed the more important points relating to the air brake to be considered by those designing and installing train control, as follows:—

Brake manipulation must vary with different train make-ups, lengths, weights, speeds, etc. It follows, therefore, that in the development of such automatic devices, the methods used by the engineman must be duplicated, at least to a degree which will provide satisfactory handling of the train without discomfort to passengers or damage to equipment or lading. If, however, the results in train handling under the automatic manipulation may be disregarded, this feature is simplified and it is only necessary to consider the maximum stopping distance as indicated by operating requirements. This is somewhat of a perplexing problem as it varies for different localities and train conditions.

I have been asked many times in what distance a train may be stopped from various speeds. The question cannot be answered without information as to all other factors involved. The ability to control trains with automatic devices is predicated upon the control provided by the present air brake systems; the latter is therefore the foundation upon which each element of the automatic device must depend and its scope is limited only by the flexibility, efficiency and effectiveness of such braking systems.

In general service, the interchange of equipment is a very important factor to be reckoned with, and one which complicates the situation in view of the fact that we have no record of brake values proportionate to weight of cars for all the railroads of this country.

The generally accepted standard for braking power on freight cars is 60 per cent of the weight of such cars, for

service braking with 70-lb. brake pipe pressure, but since some cars are nearly five times as heavily loaded as when empty, the braking power is nominally only about 12 per cent and it is this condition that must be considered if interchange of equipment is common to operation.

The problem of providing an ample spread in stopping distance for the loaded train so that brake manipulation may be provided to care for satisfactory stopping of the empty and mixed freight train, is a tremendous one, and it is possible the automatic device has limitations which makes this impossible of accomplishment. I have in mind particularly devices which will provide for gradual applications of the brake so that average conditions now existing will not have to be disturbed and that the loaded train may, under the same manipulation, be protected. Experience will, of course, dictate the necessity for modifications in existing systems and it is possible that the future will witness a compromise between the brake systems and automatic systems which will permit of stopping both freight and passenger trains without criticism if the present systems fall short of this requirement.

Turbo-Generators for Train Control

Turbo-generators for Locomotive Lighting and Train Control was the subject of a paper presented by J. J. Kennedy, electrical engineer of the Pyle National Company, a summary of which follows:

Prior to the advent of train control signal engineers had little or no reason to concern themselves with any of the equipment which goes on the locomotive. It is quite natural for you now to direct your attention to the turbo-generator furnishing power for locomotive lighting and which is rightfully regarded as the proper source of current supply for train control. The locomotive turbo-generator is called upon to operate under all kinds of weather conditions and must successfully withstand the severe shocks imparted to it from the locomotive. It has constant speed and voltage control over a wide range of steam pressures. The speed can be kept within two per cent of the rated speed from no load to full load. The loading in lamps ordinarily found on the locomotive is about 375 to 425 watts. The cab load is with few or no exceptions connected directly across the generator terminals.

It is commonly supposed that the headlighting turbo-generator is run only at night when the headlight is required. Such is not the case for with the increased size of locomotives and the multiplicity of gages, etc., in the cab the engineman finds it necessary today to have the generator running to furnish lights in the cab, even in the daytime. An average of the time that the headlight turbo-generator is in operation will exceed 75 per cent of the time the locomotive is in operation. The utilization of the turbo-generator the extra part of the time is not going to add appreciably to the cost of operation or maintenance.

In addition to close voltage control there is another requirement being imposed by the continuous induction types of train control. This is that the voltage wave shall be entirely free from any pulsations or alterations since any such irregularities will result in loading up the vacuum tubes used to amplify the currents picked up by induction from the "track" and "loop" circuits. The major part of these irregularities experienced from the turbo-generator in conjunction with the continuous induction devices, has not been due to inherent defects in the turbo-generator equipment, but rather from disorders which creep in as a result of operating conditions such as excessive vibration, poor brush fits or surfacing, worn bearings, etc. Designs of equipment are under way, however, and will be soon available, which will not only be

free of all such irregularities, but of such a nature as to insure against any changes due to operating conditions and common maintenance practices.

Years of development and progress with well established maintenance forces on every railroad operating staff make the turbo-generator a unit which should assist and never retard the most progressive and interesting art that has ever been made part of railroad practice—automatic train control.

Election of Officers

W. M. Post, superintendent telegraph and signals of the Central region of the Pennsylvania, Pittsburgh, Pa., was elected chairman for the ensuing year, A. H. McKeen, signal engineer, System, Union Pacific, was elected vice-chairman and C. H. Tillett, Canadian National, as second vice-chairman.

G. H. Dryden, Baltimore & Ohio, W. E. Boland, Southern Pacific, and Geo. Chappell, New York, New Haven

& Hartford, were elected members of the board of direction.

Annual Meeting of Signal Appliance Association

The Signal Appliance Association held its annual meeting on Thursday morning at which time M. J. Fox, signal engineer of the Railroad Supply Company, was elected chairman for the ensuing year; W. P. Allen, Union Switch & Signal Company, was elected vice chairman and Frank W. Edmunds was elected secretary-treasurer. New members elected to the Board of Directors were W. J. Gillingham, vice-president, Hall Switch & Signal Co.; W. M. Manuel, Corning Glass Co.; J. J. Hubbard, General Railway Signal Co., and A. E. Pratt, manager, railway sales division, National Carbon Co.

Railway Clerical Employment

By C. U. Stapleton

Supervisor of Office Methods, Canadian National Railways

LABOR, being the largest single factor of expense in office operations, any increased volume of work should be met, as far as possible, by increased clerical production rather than by increase of staff. Those interested in the betterment of office methods are confronted with several difficult problems and perhaps the most important, apart from some adequate method for unit measurement of clerical production without additional supervision or record keeping, is this question of labor.

It is customary to consider only the salary, of say \$75.00 a month, when we are requesting an additional employee; for example, a stenographer; but it should be pointed out that there is very much more than the salary involved in this transaction from the standpoint of the railway as a whole.

Let us take a period of five years.

In the first place this extra stenographer is going to tie up equipment worth about \$200.00—typewriter, furniture, etc.—and after this expenditure the interest will have to be met on the investment in the equipment, and the equipment maintained at a cost of not less than \$60.00 for the five-year period. At the end of five years depreciation at 15 per cent has amounted to 75 per cent of the original value, so that depreciation alone totals \$150.00. A stenographer uses on an average \$2.00 worth of stationery per week so that \$500.00 worth of stationery is consumed. Then there is the office space occupied with its accompanying overhead of light, heat, taxes, insurance, etc., which is worth at least \$10.00 per month or \$600.00 for the five years.

During this period the cost of supervision will amount to \$500.00 and the original training of the stenographer in railway methods will be at least \$30.00, figured on a basis of an average of that amount for each item in our office labor turnover; in other words, every time an employee leaves and another one is engaged it costs the railway a little over \$30.00. The payroll department will issue 120 checks for this employee, and all the necessary entries have to be made to record the transactions. The cost of this is not obtainable but it certainly amounts to something. There is also the keeping of staff records, and

the work involved in the granting of free transportation by the pass bureau, etc.

This is enough to show that the management has to consider at least \$1,500.00, which must be provided during the ensuing five years, not to mention the cost of payroll and staff to record operations, etc., in addition to the salary of the stenographer, if the application for help is to be granted.

Additional staff is often unavoidable so that I am endeavoring to emphasize the importance embodied in the engagement of a new employee. If the railway was expending \$1,500.00 on other material, and there were many and various types, grades, etc., with different qualifications, and the goods could not be returned if they were found to be unsuited to the requirements after delivery, thorough investigation would be made of the market possibilities before buying. In the case of an adding machine, typewriter or other office appliance, a trial would be requested.

The employment office should be a testing office and if the applicant is not engaged by the employment office but is referred to the officer in charge where the vacancy has occurred, this officer should remember that he is then in the position of a purchasing agent for the railway. When the purchasing department is going to buy its more important materials, samples are requested and these are tested and analyzed to measure them up to a fixed standard. If any mistake is made and the goods prove defective, the purchasing department simply instructs the stores to return them to the merchant and asks for a credit; therefore the railway's money is not even jeopardized, much less wasted.

On the other hand, in buying the human element in the railway business, there is being purchased the most important material used in inside operations and moreover used in work where incompetence may lose the railway a great deal of money, sometimes without anyone being aware of the fact, because it is not always the wrong action taken, but more often no action at all which causes the largest losses.

The majority of office troubles originate from one source and that source is the engagement of the employee.

At this time it is important not only to weed out undesirable applicants, but also to apply the proper method of actually testing mentality, to determine natural ability, which, after all, is probably our greatest assets, in spite of what is being said today about the advantages offered by the higher business courses. An employee with natural ability and ambition can secure the other element, education, but an employee whose educational qualifications might weigh in his favor may never acquire any natural ability.

During the past year my work has carried me through the offices of a number of different railroads. My observations have convinced me that, on the average, there seems to be a higher percentage of misfits among clerical employees in railway organizations, than in other large public utility and industrial organizations. This should not be blamed altogether on the fact that, because of the scattered locations of railway offices, centralization of employment is possible only to a limited degree. Nor can we lay the fault at the feet of commercial schools that accept every Tom, Dick and Harry, regardless of previous education and adaptability to the vocational course chosen by the pupil. It is up to the railways themselves to exercise their privilege of selecting the applicants by examination or test at the employment desk, before personal interview with the actual employer, and after that engagement only on approval.

The minimum trial period should be one month and, in case of reasonable doubt, the maximum three months. It is impossible to estimate accurately the desirability of an employee in less than one month and if the employee does not measure up to the requirements during the first three months, another applicant should be given a trial. Schedule rates for the trial period should be from 15 to 25 per cent less than the regular rate to be paid for the position if permanent employment is given. Even then the railway is out of pocket, for the trial period is partly educational and the return is only about 60 to 70 per cent of

the average expectation; also any profit or return above the salary paid, which ordinarily will accrue to the railway later, is not found during the trial period. A lower rate for the trial period will result in a decreased cost of labor turnover by increasing the percentage of return during the period of lowest production.

It is a well established fact that very few employees are dropped from the staff, unless in case of a general staff reduction, so that apparently it is not usual to make change simply to increase production. The president of the United States Business Service in Boston says, that in a great many lines of business he finds the profit, earned by the producers is spent in paying the board bills of the boarders, for such he terms those employees who have no special qualifications for the work they are undertaking, who are not endeavoring to improve their fitness for their positions, and who hang on because it is human nature for the employer to dislike the thought of firing anybody who is doing his best. There is a story in a current magazine about Charles Schwab, the steel magnate. One of his neighbors in Pennsylvania tried to sell him a cow. Mr. Schwab inquired regarding breed, age and other details, but did not receive very satisfactory answers. Finally he said "How much milk does she give?" The farmer replied "Well now, Mr. Schwab, I don't know, but she is a darn good natured cow, and she'll give all she can."

That is about the position of some of the boarders in railway offices. I hope to see the time in our line of business when it will be realized that, where cost is the gage of qualifications, the most expensive employment department is the cheapest in the end. I cannot stress too strongly the imperative necessity of the most careful investigation of what lies under the surface, for there is nothing on the market being purchased today, in which the A-1 material, and the scrap, more closely resemble one another on the surface, than they do in the human material which offers itself for clerical positions.

Rate Structure Investigation

A GENERAL investigation of the rate structure of all common carriers subject to the Interstate Commerce act, as directed by the joint resolution of Congress, S.J. Res. 107, commonly known as the Hoch-Smith resolution, has been instituted by the Interstate Commerce Commission by an order dated March 12, made public on March 17. The order is docketed as No. 17,000 and entitled "Rate Structure Investigation." Therein are brought in question, the commission says in a notice to the public outlining its proposed course of procedure, "all the rates, fares and charges, and all classifications, regulations, and practices relating thereto, of common carriers subject to the interstate commerce act for the transportation or transmission in interstate or foreign commerce of the various classes and kinds of commodities and of the various classes of traffic including freight, passenger, mail and express; and also the relationship between the interstate and intrastate rates, fares, and charges," but it is not the intention of the commission to consider now rates other than those for carriage by rail or water which were presumably those in the mind of Congress when it adopted the resolution. An "entire reorganization of the rate structure for freight" to be ordered at once by the Congress, was recommended by President Coolidge in his first annual message to Con-

gress on December 6, 1923, and the separate resolutions which were modified and then merged in the one finally passed were introduced shortly thereafter as a part of the program for the relief of the "existing depression in agriculture," which is still referred to in the resolution approved on January 30, 1925.

The commission does not propose to enter at once upon extensive hearings, but as a first step it invites all interested to submit to it informal memoranda on any phase of the subject, and if it is claimed that any particular traffic is subjected to undue burden by existing rates, the complainant is urged to indicate as clearly as possible the traffic receiving undue advantage or on which compensatory increases could be placed if found necessary. Also, parties to cases already decided or now awaiting decision are given an opportunity to apply for a reopening for the purpose of presenting matters comprehended by the resolution. In its public notice of the investigation, which is accompanied by a copy of the resolution and of the order instituting the investigation, the commission says:

Briefly summarized, the purpose of this investigation is to comply with the joint resolution in order to determine the extent and manner in which the rate structure of common carriers subject to the interstate commerce act is in any respect unlawful, and to make in accordance with law such changes, adjustments, and

WASHINGTON, D. C.

redistribution in that rate structure as may be necessary to correct any defects found to exist.

In discharge of this duty the commission will not enter at once upon extensive hearings. It intends to conduct the investigation in a manner conducive to full and orderly development of material facts and with as little delay and expense to shippers, carriers, and the government, and as little disturbing effect upon production, distribution, and the free flow of commerce, as may be found practicable. Necessary or appropriate decisions and orders may be made in the progress of the investigation. The commission is required to effect with the least practicable delay such lawful changes in the rate structure of the country as will promote the freedom of movement by common carriers of the products of agriculture affected by the existing depression declared in said joint resolution, including livestock, at the lowest possible lawful rates compatible with the maintenance of adequate transportation service.

The joint resolution authorizes and directs the commission to make a thorough investigation of the rate structure of "common carriers subject to the interstate commerce act." Accordingly all pipe-line companies; telegraph, telephone, and cable companies operating by wire or wireless; express companies; sleeping-car companies; and all persons, natural or artificial, engaged in such forms of transportation or transmission, as well as those engaged in the transportation of persons or property by rail or by water subject to the act, have been made respondents in this proceeding. But it is not the intention of the commission to proceed now, without further notice, to consider the rate structure of carriers other than those engaged in the transportation of persons or property, including mail and express matter, by rail or by water subject to the act, as a part of the present proceeding of investigation.

In the conduct of this investigation the commission will avail itself, as far as it can, of the assistance and cooperation of state authorities possessing rate-making powers, and invokes the cordial cooperation and assistance of all shippers and carriers.

Changes, if any, in the rate structure of the country, under the resolution, will be made after giving due consideration, among other factors, to:

(1) The conditions which prevail in the several industries of the country, in so far as it is legally possible to do so, to the end that commodities may freely move, consideration of which to such extent is declared by Congress to be the true policy in rate making to be pursued by the commission.

(2) The general and comparative levels in market value of the various classes and kinds of commodities as indicated over a reasonable period of years.

(3) A natural and proper development of the country as a whole.

(4) The maintenance of an adequate system of transportation.

(5) Other requirements of law, whether statutory or found in the Constitution, which control the commission in respect of the initiation, modification, establishment, or adjustment of such rates, fares, charges, and all classifications, regulations, and practices relating thereto.

Attention is directed to the proviso in the last paragraph of the resolution:

Provided, That no investigation or proceeding resulting from the adoption of this resolution shall be permitted to delay the decision of cases now pending before the commission involving rates on products of agriculture, and that such cases shall be decided in accordance with this resolution.

The provisions of the resolution are now a part of the law which the commission administers, and are therefore to be applied

in every case which may fall within the terms of the resolution, or be affected thereby, whether adversely or beneficially.

The commission expects these requirements of the law to be considered by all parties in proceedings now pending before it, so that any material and relevant facts necessary may be made of record in cases yet to be heard. As to cases already heard, whatever their status short of final decision by the commission, any party deeming the record insufficient in this regard should promptly call the attention of the commission and adverse parties to the deficiency, and the general nature of the facts tendered to supply the omission. This should be done in the manner in which other procedural motions are made and served in pending cases.

If in the light of the resolution parties to cases heretofore decided consider that such cases should be reopened for the purpose of presenting matters comprehended by the resolution, application for such reopening should be made in the manner prescribed by Rule XV of the commission's rules of practice, and should state briefly the nature and purpose of the evidence to be introduced as required by that rule.

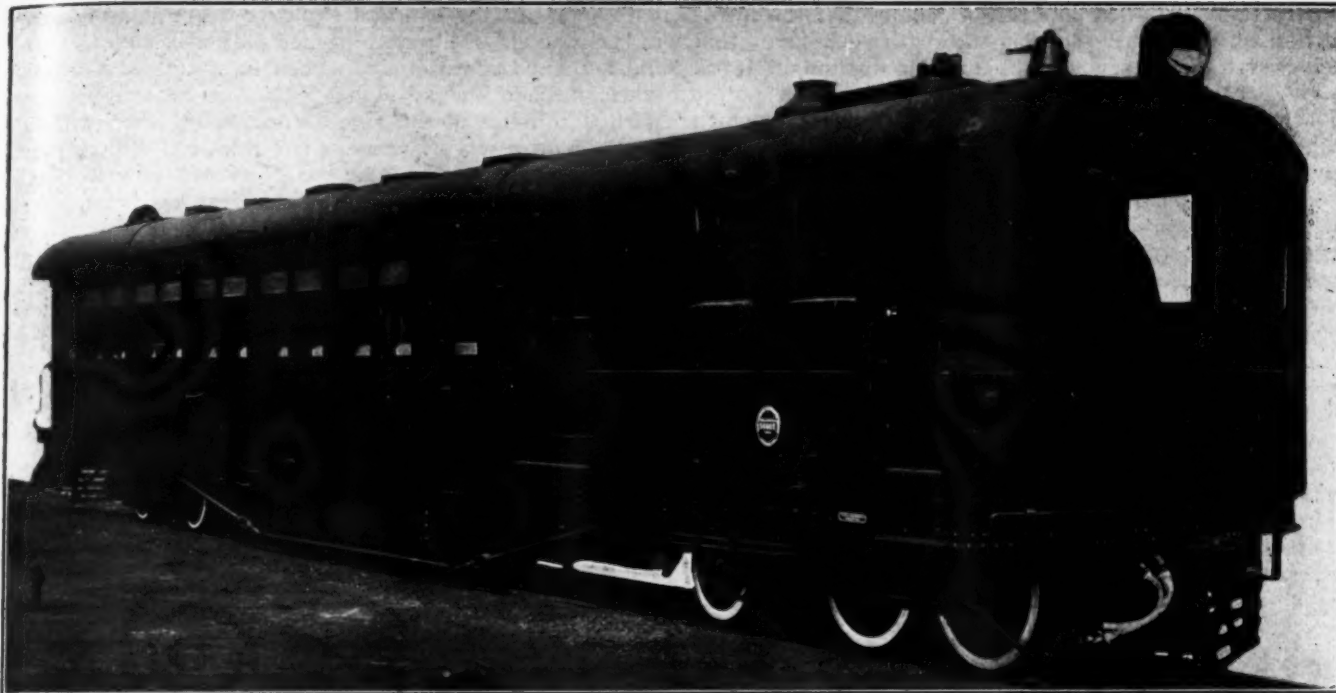
In order that the commission may as soon as possible carry out the mandates of the joint resolution as above summarized, and in aid of such purposes, the public generally, including both shippers and carriers, whether as individuals or in organizations, and the public authorities, state and federal, (1) may file with the commission any desired brief or statement as to the intent of the joint resolution, the construction thereof, and the procedure to be pursued in giving effect thereto; and (2) may bring to the attention of the commission any appropriate statement of the facts, verified by affidavit, deemed to bring any classes of traffic, or any class or kind of commodities, or any general or special schedule of rates, fares, and charges, or other matters embraced in the investigation, within the provisions of the resolution. In the event it is claimed that any of the various classes and kinds of commodities and of the various classes of traffic is subjected to undue burden, any traffic or commodities receiving undue advantage or on which compensatory increases could be placed if found necessary should be indicated as clearly as possible. To facilitate the study and examination of the informal representations so to be made, it is desired that such memoranda shall be prepared and printed in the same form as briefs before the commission although legible typewritten or mimeographed memoranda will be received, and that at least 25 copies shall be furnished to the commission for its use, as soon as possible, and not later than May 15, 1925. A file of such memoranda will be open to public inspection in the office of the secretary of the commission. Answers to any such memoranda may be made by any interested person in like manner and be lodged with the commission not later than June 15, 1925. Such memoranda can not, under the law, take the place of evidence upon the hearing, or be given weight in the final consideration and disposition by the commission of the matters involved. They are desired for the aid and guidance of the commission in shaping its procedure.

Meantime, the commission will constitute a committee of its own membership, which, with the assistance of competent experts, and of representatives of the state commissions, will study known or discoverable situations. Upon consideration of the results of such study and of the representations made by memoranda as contemplated in the last preceding paragraph of this notice, and of such applications as may be made for rehearings or further hearings in pending or decided cases, the commission will decide and announce the order of its further procedure in the pending investigation. All correspondence in this proceeding should be addressed to the secretary of the Interstate Commerce Commission and should refer to Docket No. 17000.



Members of the General Ticket Agents' Association who Attended the Convention at the Metropolitan Hotel, in New York, on March 19-21, 1862.

The photograph was found in the attic of a railway office at Cincinnati in 1880, by Frank Van Dusen, chief assistant passenger agent of the Pennsylvania Lines, who presented it to the Central Passenger Association some time prior to his death. J. H. Kimball, general ticket agent of the La Crosse & Milwaukee (tenth from the left, front row), was president, and H. C. Marshall, general ticket agent of the Cleveland, Columbus & Cincinnati (fourth from the left, front row), was secretary.



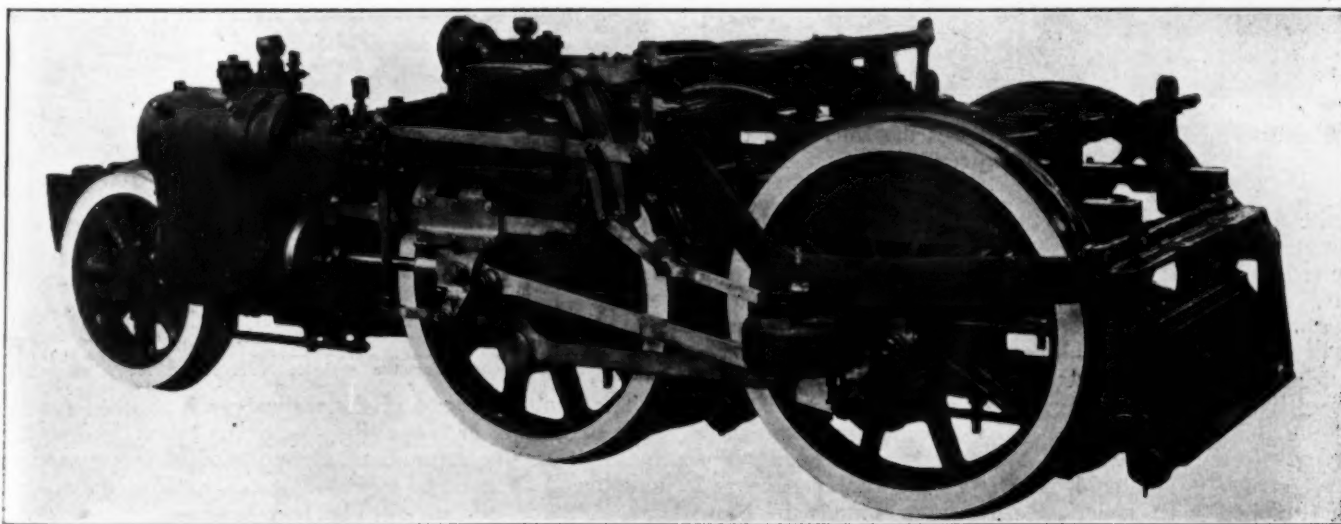
Exterior of Steam Motor Car Built by the Baldwin Locomotive Works for Porto Rican Service

Steam Motor Cars for a Porto Rican Railroad

New units have proved so economical in operation that fare reduction has been effected

THE loss of railroad passenger traffic brought about by motor bus competition which modern highway construction has made possible has not been entirely confined to the American continent. The American Railroad of Porto Rico experienced such a condition to the extent that it turned to the rail motor car as a logical solution of the problem.

An interesting departure from the more recent trend in rail motor car design has, in this case, been the use of a steam propelled unit. Two such unit cars have recently been delivered by the Baldwin Locomotive Works for service on the lines of the American Railroad of Porto Rico and have rendered such satisfactory service that three more have been ordered and are now under



Side View of the Front Truck Into Which the Engine Is Built as a Unit

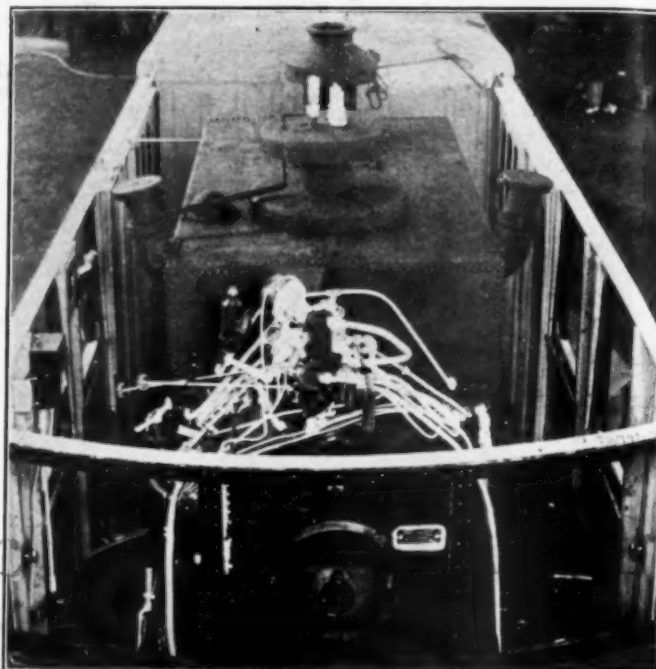
construction. Another interesting fact is that the introduction of these new cars has met with such favor that increased traffic has made possible a reduction in fares.

These cars have been designed with sufficient power capacity to enable the handling of a trailer car which makes possible the doubling of train capacity without any great increase in operating costs. The motor cars are of steel construction with seating capacity of 46 persons. The car body interior is of wood trim with reversible seats upholstered in woven rattan. A mineral compound is used for floor construction in the passenger compartment. A silver grey finish provides a pleasing interior appearance. A dynamo in the engine room provides the source of power for the electric headlight and interior illumination. An overhead tank, filled from the main engine tanks by means of a hand pump, supplies water to a flush toilet and a wash basin in the lavatory.

The engine compartment is separated from the passenger section by a fire-proof partition. Doors are provided to the baggage room and to the outside and drop sash windows afford a clear view of the track ahead. The engine room floor is of checkered steel plate and the ceiling is so constructed that the engine room roof may be entirely removed, thus facilitating the removal or repair of machinery.

A locomotive type boiler with 262 sq. ft. of evaporative heating surface, 35 sq. ft. of superheating surface and a

with joints of the ball and slip type. The flexible joints in both the above lines are packed with asbestos. A speed indicator and recorder is attached by means of a driving wheel mechanism and a dial located in the engine compartment indicates the running speed together with air brake main reservoir pressure. This speed indicator and recorder provides a graphic record as well as visual indications. The opposite end of the motor car is supported on a four-wheel passenger car truck. Both the driving and the rear trucks are equipped with Westinghouse air



The Engine Compartment, with Roof Removed, Showing the Boiler, Fuel Tank and Control Apparatus



Simplicity of Decoration Characterizes the Interior of the Passenger Compartment

grate area of 6.75 sq. ft. furnishes ample steam to the engines for all operating conditions which may be required, including that of occasionally handling a trailer car. A saddle tank of 400 gallons capacity located over the boiler contains the fuel oil supply. The engine, which is of the two cylinder simple type, is built into the drive truck as a unit. This truck has six wheels, four of which are driving wheels. The cylinders are 9 in. bore by 12 in. stroke and are of the piston valve type, steam distribution being effected by means of Walschaert valve gear. The entire truck is arranged to swivel on a center plate and is equipped with roller side bearings similar to those used on a passenger car truck. The steam supply line is fitted with flexible joints and the exhaust line is equipped

brakes. Standard M. C. B. couplers, and iron pilots are provided on both ends of the car.

The following information in connection with the cost of operation will be of interest and is based on the actual operation of the two steam motor cars now in service between the towns of San Juan and Arecibo over a period of 82 days:

General information:

Length of run between terminals.....	miles	55.9
Weight of steam car in running order.....	lb.	96,000
Weight of trailer.....	lb.	36,000
Number of trains daily.....		4
Number of trains daily carrying trailer.....		2
Total number of trains in 82 days.....		328
Seating capacity of steam car.....		46
Seating capacity of trailer.....		50
Total seating capacity of four daily trains.....		284
Total daily run of both cars.....	miles	223.6
Total run in 82 days (steam car).....	miles	18,170
Total runs in 82 days (trailer).....	miles	9,084

Fuel and personal expenses:

Total consumption of fuel oil for the period.....	gal.	40,115
Cost of fuel oil.....		\$1,623.70
Lubricating oil, steam passenger car.....	gal.	234.5
Cost of lubrication, steam passenger car alone.....		\$95.57
Cost of lubrication, trailer.....		\$4.56
Cost of personnel—engineman.....		\$465.54
Assistant and brakemen.....		\$340.40
Conductors.....		\$371.80

Total expenses for the period..... \$1,177.74
\$2,901.57

The additional load of the trailer car is claimed not to have materially increased the cost of operation, except for fuel. For the steam car alone the fuel consumption averages 1.54 gal. per mile and, when hauling the trailer car, 2.82 gal. per mile. The fuel consumption of steam locomotives previously used in this service averaged 3.59 gal. per mile.

St. Paul in Receivership

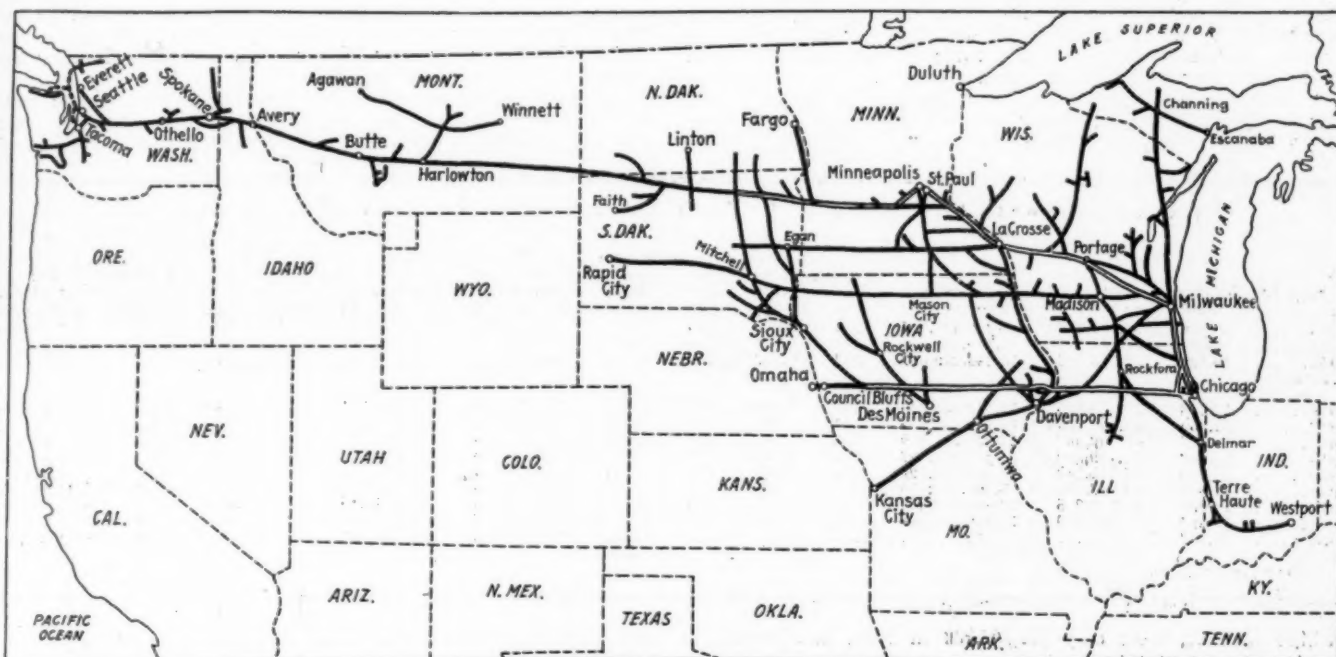
*H. E. Byram, Mark W. Potter and Edward Brundage
chosen to operate property by Judge Wilkerson*

SUSPENSE resulting from the financial worries of the Chicago, Milwaukee & St. Paul and the fear that it might be unable to meet the \$48,000,000 maturities on its bonds on June 1 were set at rest by announcement Tuesday evening that a receivership would be found necessary. On Wednesday the receivership was established by Judge James H. Wilkerson of the United States District Court at Chicago, who appointed as receivers H. E. Byram, Mark W. Potter and Edward J. Brundage. The petition for receivership was filed by the Brinkley Coal Company and there was no opposition to it. The operation of the road will continue under its present officers.

The Chicago, Milwaukee & St. Paul operates 11,000

the company reported a net after charges of \$207,686.

The funded debt that matures on June 1, 1925, totals \$48,000,000. It includes \$35,100,000 of the gold 4 per cent bonds issued in December, 1915, and \$11,831,515 of the European, 15-year 4 per cent debenture bonds, issued in June, 1910, in the original amount of \$48,176,655 (or the equivalent in francs and pounds) of which \$36,345,139 had been acquired by the company prior to December 31, 1923, and pledged to secure an equal amount of the gold 4 per cent bonds maturing on the same date. It had been hoped that some method might be worked out to meet the June 1 maturities. The making public of a report on the physical condition of the property by Coverdale & Colpitts, the firm of engineers retained by the



The Chicago, Milwaukee & St. Paul

miles of railroad. Its going into receivership means that there will now be operated by receivers a total of about 19,000 miles of railroad in the United States, of which over one-half is included in the Milwaukee's own mileage. Other important roads at present in the hands of receivers include the Chicago & Alton, the Minneapolis & St. Louis and the Atlanta, Birmingham & Atlantic, all three of which are equivalent to but a proportion of the St. Paul's mileage. The total of 19,000 miles in the hands of receivers is the largest since 1918. In 1916, over 37,000 miles of railroad were in the hands of the courts.

The Milwaukee's capitalization on December 31, 1923, totaled \$667,658,895. It had outstanding \$117,411,300 of common stock and \$115,931,900 of preferred. Its funded debt totaled \$434,242,796 inclusive of about \$25,000,000 of equipment trusts and notes owing to the United States Government of \$55,000,000. Interest on funded debt in 1924 totaled \$20,447,614 and for the year 1924 the road reported a deficit after fixed charges of \$1,868,606. In 1923, with slightly larger gross income

company's directors, was awaited with interest. About ten days ago it began to be believed that no means could be found. The result was a sharp decline in the price of St. Paul securities on the stock exchange. In a single day—Wednesday, March 11—the price of the gold 4's fell ten points to 53 and bonds of later maturity fell three or four points. There was later a slight recovery. On the day, Wednesday this week, that the announcement of the receivership was made, the gold 4 per cent bonds closed at 48½. The common stock closed at 6¼ and the preferred at 10¼.

Directors Explain Cause of St. Paul's Difficulties

The directors, meeting in emergency session in New York on Wednesday, gave out a statement following the close of their meeting, indicating that the engineers employed to report on the physical and financial conditions of the property, had submitted an outline of their findings. The report apparently was in line with expectations. It stated namely that the physical condition of the road

was in excellent shape but that the financial structure was such as to make a readjustment imperative. The directors' statement said that "in the conclusion of the engineers, the management and the board of directors reluctantly concur. They also feel that the interests of the company and its security holders would not be conserved by using the small amount of remaining available marketable securities to meet further current deficits." The statement also said:

Various plans have been considered to meet the maturity on June 1 next of the European Loan of 1910 and 4 per cent. gold bonds of 1925, amounting approximately to \$48,000,000. Before determining upon any action in regard to this maturity the directors retained Messrs. Coverdale and Colpitts, engineers, to study and report upon the present status, the immediate and future capital requirements and the earning possibilities of the property.

While their full report is not completed, they have discussed the matter with the directors and have advised them of their conclusion that even if the maturing bonds could be refunded by the voluntary action of the holders, or otherwise, it would not solve the company's difficulties and that a readjustment of the financial structure of the company is required.

The causes contributing to the company's present difficulties are:

1. The competition of the Panama Canal, which by reason of the low freight rates between the Atlantic seaboard and the Pacific Coast and also to the Far East, via the canal, has been heavily felt by all transcontinental lines, and particularly by the Chicago, Milwaukee & St. Paul because of the large percentage of its investment in the Puget Sound extension.

2. The depressed agricultural and business conditions of the past few years in the Northwest, where a large part of the company's traffic originates. Passenger earnings, which were \$31,-

provided the new money required for improvements to road and equipment, and for additional equipment, is found, and the necessary relief from the present excessive fixed charges is given, by a readjustment of the existing financial structure.

In the conclusion of the engineers, the management and board of directors reluctantly concur. They also feel that the interests of the company and its security holders would not be conserved by using the small amount of remaining available marketable securities to meet further current deficits.

In addition to the maturity of approximately \$48,000,000 due June 1 next, there are the loans from the United States Government of \$25,000,000 due in 1927, and \$30,000,000 due in 1930, as well as the convertible gold notes of approximately \$50,000,000 due in 1932, and the twenty-five-year gold bonds of approximately \$33,000,000 due in 1934. The several maturities of 1925, 1932 and 1934, as well as a very large proportion of the bonds held as security by the United States government, are secured, directly or indirectly, by the same lien, namely, that of the general and refunding mortgage due in 2014.

Later Maturities Considered

To provide for some of these maturities or to offer special inducements for refunding to some, unless this would permanently meet the company's difficulties, would be unfair in the present outlook to the bonds maturing at later dates which it might be impossible similarly to provide for.

Any readjustment of the financial structure of the company will necessarily affect the preferred and common stock, the various issues of bonds which are directly or indirectly secured by the general and refunding mortgage, and the bonds secured by the Puget Sound mortgage, of which \$154,489,500 of the outstanding \$181,664,500 bonds, or over 85 per cent., are pledged under the general and refunding mortgage.

The directors believe that a prompt readjustment of the company's affairs will be to the best interest of the security holders and will enable the company to resume its former place among

CHICAGO, MILWAUKEE & ST. PAUL, OPERATING AND TRAFFIC STATISTICS, SELECTED ITEMS, 1913 TO 1924

Year ended June 30	Mileage	Revenue tons	Revenue ton-miles	Average haul	Revenue per ton miles cents	Revenue train load	Revenue car load	Total operating revenues	Total operating expenses	Net operating revenue	Operating ratio	Net after charges
1913.....	9,613	34,805,491	8,570,061,411	246	0.793	357	16.78	\$94,084,055	\$62,883,968	\$31,200,087	66.84	\$18,140,745
1914.....	9,684	33,007,277	8,079,689,505	245	0.808	380	16.50	93,613,700	62,890,301	30,723,399	67.18	15,476,286
1915.....	10,053	32,959,392	8,185,988,375	248	0.781	390	16.84	91,435,374	61,971,701	29,463,673	67.78	11,968,283
1916.....	10,130	38,313,345	10,043,235,657	262	0.757	425	17.94	105,646,484	69,120,958	36,525,526	65.43	16,717,357
Year ended Dec. 31												
1916.....	10,208	39,986,136	10,747,233,415	269	0.741	442	18.15	110,609,689	73,765,051	36,844,638	66.69	16,068,260
1917.....	10,257	38,444,353	10,545,443,466	274	0.758	468	20.06	113,739,202	85,195,964	28,543,238	74.90	4,468,632
1918.....	10,303	40,307,047	11,504,301,469	285	0.840	536	22.89	132,894,455	122,196,105	10,698,350	91.95	6,327,891
1919.....	10,647	40,295,220	11,501,514,483	285	0.924	554	21.97	150,370,394	138,561,705	11,808,689	92.15	7,643,045
1920.....	10,624	45,041,277	11,384,600,804	253	1.029	544	22.38	168,158,734	164,697,121	3,461,613	97.94	4,366,071
1921.....	10,809	34,067,136	8,283,212,410	243	1.266	493	21.15	146,765,766	127,957,002	18,808,764	87.18	Def. 11,070,609
1922.....	11,030	42,034,285	10,601,913,667	252	1.094	543	22.18	156,950,628	129,596,696	27,353,932	82.57	Def. 6,143,168
1923.....	11,011	51,314,300	11,922,243,644	232	1.073	551	21.96	169,628,338	134,999,228	34,629,110	79.59	207,686
1924.....	10,987	.....	.....	.....	.....	.....	.....	158,366,458	125,550,061	32,816,398	79.40	Def. 1,868,606

*Not yet available.

034,000 in 1920, were only \$21,768,000 in 1924, due largely to motor vehicle competition.

3. The large increases in the cost of labor and materials, and in taxes, which have not been offset by corresponding increases in rates or in volume of traffic.

Forecasts of Future Earnings Pessimistic

4. The lack, for a number of years, of surplus earnings to apply toward necessary improvements, betterments, etc., the consequences of which are that the current position of the company is unfavorable, and that its equipment has suffered deterioration and is insufficient in amount.

The engineers find that the present management has striven aggressively against these difficulties and to the extent of the resources available has effected marked improvements in the company's operations and in the physical condition of its property.

The engineers' forecast of future earnings indicates that at best it will be several years before the company will be able to meet its present fixed charges and additional requirements such as the rentals imposed by the use of the new Union Station in Chicago, amounting to approximately \$800,000 a year, larger reserves for depreciation of equipment, further interest requirements on borrowings necessary for various capital purposes such as a system of 11,000 miles continually needs in order to serve the public, and such items as the repayment of equipment trust certificates, at present \$2,662,000 per annum.

On the other hand, their forecast also indicates that, under conditions of reasonable prosperity in the territory which the company serves, the road can again be put upon a sound basis,

the financially strong roads of the country and serve its territory even more effectively than in the past.

The board of directors has therefore placed the facts before the company's bankers and representatives of large amounts of the above-mentioned classes of the company's securities with a view to the organization of committees to cooperate in formulating a plan of readjustment, to be submitted at the earliest possible date.

Protective Committees

Committees have already been organized to protect the interests of the bondholders, common stockholders and preferred shareholders.

The bondholders committee is headed by Frederick H. Ecker, vice-president of the Metropolitan Life Insurance Company. "A committee has been formed," said an official statement on behalf of bankers for the road, "to protect the interest of the railway company's general and refunding mortgage bonds, series A and B; 25-year 4 per cent gold bonds of 1909, 4 per cent 15-year European loan bonds of 1910, 4½ per cent convertible gold bonds, and 4 per cent gold bonds of 1925, all of which are secured under the company's general and refunding mortgage of November 1, 1913, and the Chicago, Milwaukee & Puget Sound first mortgage 4 per cent gold bonds, more

than 85 per cent of which are pledged under the same mortgage."

The committee, of which Mr. Ecker is chairman, consists of Bertram Cutler, representing the John D. Rockefeller interests; Samuel H. Fisher, representing the Harkness interests; Jerome J. Hanauer of Kuhn, Loeb & Co., (the company's banker), William E. Knox, president of the Bowery Savings Bank and the American Bankers Association, representing the savings banks; Charles E. Mitchell, president of the National City Bank; Charles A. Peabody, president of the Mutual Life Insurance Company, and H. F. Whitcomb of Milwaukee, representing the Northwestern Mutual Life Insurance Company. Sanford H. E. Freund of 55 Wall Street is secretary of the committee and Shearman & Sterling are its counsel.

The committee to represent the interests of the preferred stockholders is headed by Mortimer N. Buckner, chairman of the board of the New York Trust Company and its other members are Arthur W. Loasby, president of the Equitable Trust Company of New York; Oliver C. Fuller, chairman of the board of the First Wisconsin National Bank, Milwaukee, Wis., and Harold I. Pratt, of Charles Pratt & Co., of New York. Boyd G. Curtis, of 100 Broadway, is secretary of the committee, and George Welwood Murray counsel.

A committee also has been formed to represent the holders of the common stock, composed of Donald G. Geddes, of Clark, Dodge & Co., chairman; George W. Davison, president of Central Union Trust Company of New York; Bayard Dominick, of Dominick & Dominick; Walter L. Johnson, of Shearson, Hammill & Co., and Percy A. Rockefeller. C. E. Sigler, 80 Broadway, is secretary of the committee and Cotton & Franklin, counsel. The Central Union Trust Company, of New York, will be depositary for the common stock.

Statement by F. J. Lisman

An interesting analysis of the St. Paul situation was made public by F. J. Lisman of F. J. Lisman & Co., on Monday, before the receivership was established. Mr. Lisman said in part:

Many security holders say a receivership can only be temporarily avoided, and that to defer it will be very much worse in the long run. They think it is best to reorganize the road now, raise from \$30,000,000 to \$50,000,000 by asking the stockholders to pay an assessment, and creating a new mortgage ahead of the general and refunding bonds, under which the company can raise at a reasonable rate of interest such additional capital as may be needed from time to time.

They point to the fact that the company has coming due within ten years many bond issues, that is, \$50,000,000 in 1932, \$33,000,000 in 1934, and the \$55,000,000 due the Government and secured by the same mortgage. If a receivership is to come, it might as well come now, they argue, and the company be permanently put on a sound basis.

The bonds about to mature are secured by a general and refunding mortgage. There are other bond issues outstanding secured by the same mortgage; in fact, there are altogether some \$200,000,000 of these bonds, of no less than five different issues, held by the public and secured by this mortgage. The Government has lent to the Chicago, Milwaukee & St. Paul some \$55,000,000 and has approximately \$67,000,000 of bonds secured by this mortgage as security for these advances, and the company has over \$50,000,000 additional in its treasury.

Terms of the Trust Deed

Under the terms of the trust deed all these bonds become due and payable if there is a default on the \$48,000,000 of bonds maturing on June 1. This would mean a foreclosure of the mortgage, assessment on the stock and a change of capitalization. Naturally the directors are going to do everything possible to prevent this.

Nearly all mortgages contain a clause which provides that no bondholder may bring suit except through the trust company which is trustee for the mortgage. Such a clause means that the trustee is agent for all the bondholders. The courts have

held many times, notwithstanding such a clause, that a bondholder may bring suit as an ordinary creditor and get judgment. In the case of the bonds due June 1 next, there is the unusual provision in the bond itself to the effect that no bondholder can bring suit except through the trustee and that the trustee can only act if 20 per cent. of the bondholders so require.

The directors unquestionably are going to ask the holders of the \$48,000,000 bonds to take in exchange a new bond, which probably will bear 6 per cent. and which may become due in from seven to ten years, or possibly even later. They even may offer to give bondholders additional security, by offering them in exchange for their present bonds a note secured by \$1,500 of bonds for every \$1,000 note. If more than 80 per cent. of the holders of the maturing bonds agree to such an extension, the balance apparently will be bound. That is, they may be debarred from litigation and the situation will appear to have been "saved".

There are a large number of bondholders of the system, however, who believe that in the end the Chicago, Milwaukee & St. Paul and its security holders will be very much better off if it is not "saved" at this time. They point out the fact that there is no way by which it can obtain additional capital for the purpose of increasing its facilities. Additional capital is necessary for all railroads in the United States, but especially so in a country largely undeveloped, like the territory of the St. Paul.

Government Loans

There is much loose talk about what the government should do to help the situation. The government, as security for its advances, has \$18,000,000 of general mortgage bonds as well as \$68,829,000 refunding mortgage bonds. The general mortgage bonds are secured by a first mortgage on the bulk of the company's mileage and are a perfectly good security. The gossips think that the government ought to give up its good security and accept refunding bonds in exchange therefor.

In view of all these conditions it would appear that a surgical operation will become necessary sooner or later, unless conditions in the Northwest improve much more rapidly than reasonably can be expected at this time. Wall Street, while anxiously waiting for news, is quite prepared for the worst. This is indicated by the price level of the various securities of the system.

For example, the 4½ and 5 per cent bonds, due 2014, and even the 4½s, due 1932, all have been selling in the 50s. The only issue secured by the general and refunding bonds selling much above that are the bonds about to come due, and they are selling in the 50s. At this price they would yield a return of considerably more than 200 per cent. per annum on the money if they were paid off in cash within 90 days. Thus, the market gradually has been adjusting itself to the fact that if the principal of these bonds is not paid these issues will rank coequally, in accordance with the terms of the mortgage, under which all these bonds are alike in case of foreclosure.

The Receivers

H. E. Byram has been president of the Milwaukee since October, 1917. He started in railway service in 1881 as a call boy on the Chicago, Burlington & Quincy and was later a stenographer and clerk. From 1889 to 1894, he was out of railway service, but then returned to railway employ as a clerk in a general manager's office on the Northern Pacific. He later became chief clerk in the office of the vice-president, and in 1898 was appointed to his first official position in the operating department as assistant general superintendent of the Montana Central. He was later superintendent of the Cascade Division of the Great Northern, assistant to the first and fourth vice-presidents of the Chicago, Rock Island & Pacific, and for a period in 1904 he was general superintendent of the southwestern district of that road. In September, 1904, he returned to the Chicago, Burlington & Quincy as general superintendent of the Nebraska division. In 1908, he became assistant to the vice-president, and from February, 1910, to October, 1917, when he left to become president of the Milwaukee, he served as vice-president of the Burlington.

Mark W. Potter has just retired from the Interstate Commerce Commission, after having served as a member of that body since May, 1920. He is a lawyer by profession, and prior to his appointment by the commission was a member of the law firm of Hornblower, Miller, Garrison & Potter at New York. For many years he was interested in the development of the natural sources of the

mountainous sections of Kentucky, Virginia, Tennessee and North Carolina, in connection with which he became interested in the Carolina, Clinchfield & Ohio of which he became counsel in 1905. In 1907, he was elected chairman of the board, and in February, 1911, he was also elected president of that property. Upon his recent retirement from the Interstate Commerce Commission, it was announced that he would return to the practice of law at New York.

Edward J. Brundage, the third receiver is also a lawyer by profession. He was born at Campbell, N. Y., on May 13, 1869, and was educated in the public schools. After being employed in railroad offices in Detroit, Mich. and Chicago, Mr. Brundage was admitted to the bar in Illinois. He was elected to the house of representatives of Illinois in 1899 and president of the board of county commissioners of Cook County in 1905. He was appointed corporation counsel of the city of Chicago in 1907, and held that position for four years. From 1915 to 1917, Mr. Brundage served as judge of the court of claims of Illinois. He was elected attorney general of that state in 1917 and was re-elected in 1921. Since his retirement from that office late last year Mr. Brundage has engaged in the practice of law in Chicago.

Meeting of Santa Fe Apprentices

THE second of the unique and inspiring conventions of the Santa Fe apprentices was held at San Bernardino, California, February 19-21, this being even more successful than the conference held at Albuquerque, New Mexico, a year ago.

One hundred fifty picked young men were in attendance, having been sent as delegates from the various apprentice clubs of the system. Practically every division point on the system, from the Great Lakes and Gulf of Mexico to the Pacific Coast was represented. Thirteen of the apprentice clubs sent basket ball teams to compete in the tournament held in connection with the conference. The railway management granted necessary leave of absence and provided transportation for those attending the convention, but every detail of the convention, including the preliminary and final arrangements of the program and the entertainment of delegates, was planned and carried out by the boys themselves.

Among the features of the conference were the basket ball tournament, the convention proper, and the trip with its opportunity for each apprentice to learn more of the railroad for which he works, of the country which it traverses and serves, and of the equipment and methods used in other shops of the road.

The apprentice instructors of the system offered a handsome cup to be held by the winning basket ball team for a year. Two other cups were donated by the supervisory forces at Albuquerque and the Chamber of Commerce at San Bernardino, to be held permanently by the apprentice team winning the annual tournaments. The playing was on a par with that of state or college tournaments—many of the apprentices were former high school or college stars. A high degree of sportsmanship was shown.

At no time was there "crabbing" or any foul language. It was a surprise to see the teams from the larger shops go down in defeat before those from the smaller points. Topeka, San Bernardino, and Albuquerque were eliminated early in the contest. The final championship game between La Junta, Colorado, and Fort Madison, Iowa, was hotly contested, ending 12 to 11 in favor of the Iowa team.

The convention proper opened with an address of welcome by Major Grant Holcomb who reminded his hearers that an apprenticeship course such as they had the opportunity of serving on the Santa Fe was in many respects a college course in their chosen vocation. H. S. Wall, mechanical superintendent, compared the present advanced apprenticeship of the Santa Fe with that of former years.

The whole theme of the convention was built around the apprentice clubs and their activities, with reports from members of the different clubs explaining how their club functioned and how it was conducted. If the club was a live one, the delegates were called upon to explain why it was alive and if it was dead they were called upon to tell why it was dead. These clubs stand for the physical, mental, and moral development of their members. As an indication of their activities it is interesting to note that one of the clubs issues a monthly paper which first came out in a mimeograph form with blue print cover but has grown until it now appears in print with local advertisements, items of interest and inspiring and helpful articles. This same club last year conducted a real wild west rodeo show and put on a theatrical performance which proved so successful that it had to be repeated.

In order to participate in athletics or other activities of the clubs the members must be up in their school and shop work. The boys themselves aid in carrying out the rules and policies of the management.

In addition to discussion of club activities, the program included talks by some of the boys themselves on shop subjects, with addresses by local and other shop officials, on such subjects as safety and safety, the importance of minor details in repairing cars, air brakes and how they function, the locomotive booster, methods of furthering the education of apprentices in shop and school, etc.

Reverend A. T. Goodwin spoke on "The Apprenticeship of Life," in which he urged a unity of purpose in striving toward an ideal, a physical and mental improvement, and the appreciation of fellowship. D. R. Weiman, spoke on "Popular Bunk," and F. M. Duckles, state secretary, Y. M. C. A., told of the club work of his organization. F. W. Thomas, supervisor of apprentices, spoke on "Wisdom, Skill and Service," congratulating the boys on their opportunities and good work and inspiring them to greater achievement.

Hospitality that is only equaled in the home was extended the visiting delegates, lodging and breakfast being provided by local railway employees and officials and other residents of the city. A dance was given in their honor by the local supervisory officers. Four hundred couples participated, the supervisor of apprentices and the mechanical superintendent leading the grand march. A group of seventy-five Indians all in feathers and blankets and bead regalia, brought from the Navajo Indian Reservation of Arizona gave an exhibition of their various dances—a wonderful "show" by real Indians. The hospitality of the local officials also included a sixty-five mile automobile ride for the delegates through the orange belt, the itinerary including Highlands, Redlands and Riverside, the boys enjoying the beauties of Smiley Heights, Mt. Rubidoux, and the Mission Inn.

Ivor J. Davies, freight carman apprentice, San Bernardino, was president of this year's conference. C. LeRoy Coleman, special apprentice, La Junta, was elected president for the ensuing year. La Junta, Colorado, whose club has been most active during the past year, was chosen as the place of meeting for next year's convention.

On returning to their home stations each delegate not only made oral report to his local apprentice club but also made written report to his master mechanic or superintendent shops, with copy to the supervisor of apprentices.

These reports in many cases included observations made of shop equipment and practices in the San Bernardino shops or other shops visited en route as compared with local conditions, constructive criticism being made for improvement in their home shops.

It is difficult to estimate the good derived from a meeting of this kind. Certainly leadership was developed.

Each delegate returned to his home station with a greater love for the work of his trade, a greater appreciation of the plans and purposes of the railway management and a greater conception of the nobler things of life, a greater spirit of co-operation with officials and fellow employees, and a greater determination to make the best of every opportunity offered.

Accident Investigations--July August and September

THE Interstate Commerce Commission has issued No. 21 of its quarterly summaries of train-accident investigations which is for the three months ending with September, 1924.*

This bulletin covers 12 collisions and 11 derailments as follows:

TRAIN ACCIDENTS INVESTIGATED--JULY, AUGUST AND SEPTEMBER, 1924

1068	Spokane, Port. & S.	Avon, Oreg.	July 10	C
1069	Nashville, C. & St. L.	Citico Junct., Tenn.	July 14	D
1070	Northeast Penn.	Willow Grove, Pa.	July 27	D
1071	Piedmont & Northern	Charlotte, N. C.	July 29	C
1072	Long Island	Long Island City	July 30	D
1073	Yazoo & Miss. Valley	Stonington, Miss.	Aug. 4	D
1074	Northwestern Pacific	Sausalito, Calif.	Aug. 8	C
1075	Inter-Great Northern	Grapeland, Tex.	Aug. 15	D
1076	Chesapeake & Ohio	Dayton, Ky.	Aug. 15	C
1077	Texas & Pacific	Grand Prairie, Tex.	Aug. 16	C
1078	Atchafalaya, T. & Santa Fe	Deming, N. M.	Aug. 20	C
1079	Central of New Jersey	Cranford, N. J.	Aug. 21	D
1080	Baltimore & Ohio	Mitchell, Ind.	Aug. 21	D
1081	New York Central	Millfield, Ohio	Aug. 27	D
1082	New York Central	Savannah, N. Y.	Aug. 30	C
1083	Texas & Pacific	Melville, La.	Aug. 31	C
1084	Virginian	Glen Lyn, Va.	Sept. 1	D
1085	Missouri Pacific	Howcott, La.	Sept. 5	C
1086	Louisville & Nashville	W. Frankfort, Ky.	Sept. 7	C
1087	Union Pacific	Oconee, Nebr.	Sept. 9	C
1088	Chicago, R. I. & P.	Harrell, Ark.	Sept. 22	D
1089	Michigan Central	Kalamazoo, Mich.	Sept. 24	D
1090	Chicago, R. I. & P.	Des Moines, Iowa	Sept. 24	C

Abstracts of Reports

Spokane, Portland & Seattle, Avon, Oregon, July 10.—Collision between eastbound train No. 22 and westbound passenger train No. 29 due to mental failure of the engineman; one brakeman killed, 5 persons injured. This collision was reported in the *Railway Age*, September 20, page 490.

Nashville, Chattanooga & St. Louis, Citico Junction, Tenn., July 14.—Northbound freight train No. 52 was derailed, at 12:35 a. m., by a broken wheel, while moving at about 20 miles an hour. The conductor was killed. The wheel, which was under the twenty-sixth car in a train of 55 cars, had become heated by the sticking of the brake. No defect or fault could be found in the triple valve or in the previous care or inspection of the car. There had been a stop because of a hot wheel, but this particular one had not been examined although a heated wheel had been found on another axle of the same car. The inspector says that if the car had at the same time been inspected on both sides, the dangerous condition of this wheel might have been discovered.

Reading Company, Willow Grove, Pa., July 27.—Northbound passenger train 2223, the locomotive of which was running tender first, was derailed at a highway crossing by striking an automobile, and the locomotive was overturned. The engineman and four of the seven occupants of the automobile were killed and seven other

persons were injured. The inspector finds that the driver of the automobile had proper warning not only by an automatic audible signal and by the whistle of the locomotive but also by the fact that a preceding automobile was standing at the crossing waiting for the train to pass. Owing to the injuries sustained by them, no statement could be obtained from the surviving occupants of the automobile.

Piedmont & Northern, Charlotte, N. C., July 29.—Collision between southbound passenger motor car No. 7 and a northbound freight consisting of an electric locomotive and 10 loaded cars. The freight was moving at about 20 miles an hour and the other train at about 10. The passenger car was badly damaged and its motorman was killed. Eleven passengers and four employees were injured. The men in charge of the passenger train failed to obey a meeting order and ran past the meeting point about one mile. The motorman being killed and the conductor severely injured, the inspector can find no explanation for the reason of their neglect. They had met on a similar order, a few hours before, at the same place.

Long Island Railroad, Long Island City, N. Y., July 30.—Eastbound passenger train No. 466 derailed by the careless movement of a switch when the seventh car of the train was passing over it; one passenger killed, 50 injured. This accident was reported in the *Railway Age* of August 16, pages 298 and 303, and October 11, page 659.

Yazoo & Mississippi Valley, Stonington, Miss., Aug. 4.—Northbound passenger train No. 142, moving at about 20 miles an hour, was derailed on a curve of six degrees, and the locomotive fell off a bridge, landing in a creek, bottom up. The engineman was killed and one other employee was injured. The locomotive was running tender-first because of a break in the road. The inspector, after a careful investigation, was unable to determine the cause of the derailment.

Northwestern Pacific, Sausalito, Calif., Aug. 8.—Collision between electric trains, eastbound passenger No. 514 running into westbound express No. 919, the latter consisting of only one vehicle. The eastbound train, consisting of five vehicles, had been brought to a stop. The motorman of No. 514 is held at fault for having failed to observe stop signal indications. He misread or ignored a dwarf signal (claiming it was clear) and ran through a cross-over track and struck the other train while traveling at about 15 or 20 miles an hour. Nine persons were injured. (Why the route was set through the facing point cross-over is not explained in the report). Under the rules the motorman had no right to run through the cross-over even were the signal cleared. Also, he was violating the rule which required him to run at low speed within yard limits. During the course of the investigation it was dis-

*The last preceding quarterly report of investigations appeared in the *Railway Age* of October 25, 1924, page 759.

closed that the towermen were picking electric locks when track circuits were temporarily out of service. The inspector says that immediate steps should be taken to have all cabinets properly sealed and locked.

International-Great Northern, Grapeland, Tex., August 15, 3:50 a. m.—Eastbound passenger train No. 5 was derailed, while moving at about 30 or 40 miles an hour, by a loose switch. The locomotive was turned around and overturned and the engineman was killed; four other persons were injured. The connecting rod of the switch had become disconnected from the head rod and this is attributed to improper work on the part of the trackmen, who had changed the switch-stand from the west to the east side of the track six days before the accident. The section foreman, 22 years old, had been a foreman two years, prior to which he had been a trackman for three years. It appears that the end of the connecting rod which should have been attached to the head rod was connected to the switch stand. This left it in such condition that it could be jarred off from the head rod.

Chesapeake & Ohio, Dayton, Ky., August 15, 3:53 a. m.—A westbound train consisting of a locomotive and one coach, occupied by employees, moving at about 20 miles an hour, ran into the rear of a freight of the Big Four, wrecking the caboose and overturning the locomotive. The conductor of the freight was killed and one employee was injured. The engineman of the employees' train admitted that he had run past automatic signals set against him, having become lost in the dense fog which prevailed. The fireman also, because of the fog, became unaware of his location, but said that he did not make any remonstrance at the excessive speed thinking that the engineman would look upon him as trying to give instructions as to how to run the train. The conductor, also, though satisfied that the engineman could not, at the speed he was running, see the signals properly, took no measures to slacken the speed, "being of the impression that the engineman knew what he was doing." The conductor and the flagman of the freight are censured for not using fuses; they knowing that the employees' train behind them was due.

Texas & Pacific, Grand Prairie, Texas, August 16.—Eastbound freight train, extra No. 534, switching within yard limits, at 12:25 a. m., was run into at the rear by a following train, extra freight No. 850 of the Texas & New Orleans; and the engineman of No. 850 was killed. One other employee was injured. The inspector holds this engineman responsible for having neglected to keep his speed under control within yard limits, as required by Rule 93. The yard limits include six miles of main line. The view of the standing train was good, however, and "it is difficult to understand" why neither engineman nor fireman saw the rear lights of the standing train. The block signal operator at Arlington had requested the dispatcher to issue a caution card for No. 850, knowing that the preceding train was still on the main track at Grand Prairie; but this operator went off duty at midnight, and the one who took his place decided not to deliver the caution card. The investigation disclosed that some of the employees had not been thoroughly instructed on the manual block signal rules.

Atchison, Topeka & Santa Fe, Deming, New Mex. August 20.—A work train, entering the yard, collided with a yard engine, and a carpenter riding on the forward end of the leading car of the work train was killed. Seven persons were injured. The work train was not properly under control, and the men in charge of the yard train had not definitely ascertained that the main track was clear for the movement which they were making.

Central Railroad of New Jersey, Cranford, N. J., Au-

gust 21.—Fast passenger train derailed by striking an automobile; four persons killed, 26 injured. Reported in *Railway Age* of August 23, page 344, and October 4, page 614.

Baltimore & Ohio, Mitchell, Ind., August 21.—Eastbound passenger train No. 12, moving at about 30 miles an hour, on a side track, was thrown off at a Hayes derailer, and the locomotive was overturned. The engineman and the fireman was killed. This accident occurred about 3:51 a. m. The train had run past an automatic signal set against it and had entered the siding (where the switch light was not burning) and had run more than a mile on the side track without anyone on the train noticing the fact. Between the automatic block signal and the entrance to the side track, the train had stopped and taken water. A switching crew had left the switch misplaced, a short time before; and the conductor of this crew is censured for entrusting the care of the switches to two inexperienced men. The members of the switching crew knew that the switch light was not burning, yet took no measures to light it.

New York Central, Millfield, Ohio, August 27.—Southbound passenger train No. 6, moving at about 35 miles an hour, was derailed by a board which had been fastened on the rail by a boy of nine years; and the locomotive was overturned. The engineman was killed and four passengers and three employees were injured. The boy had fastened the board on the rail with a wire. No explanation was found except that the boy had a curiosity to see what would happen.

New York Central, Savannah, N. Y., August 30.—Westbound passenger train No. 47, moving at from 30 to 45 miles an hour, in a dense fog, about 1:23 a. m., ran into the rear of a preceding passenger train No. 19, which had been unexpectedly stopped by the rupture of a hose connection; and the locomotive of No. 47 and the rear car of the standing train were badly damaged; 43 persons injured. This collision was due to failure of the engineman of No. 47 to observe and obey cautionary and stop automatic block signals. The engineman declared that the air brakes had not been working properly, but the inspector says that the evidence shows the brakes to have been in proper working order, and he believes that the engineman misjudged the speed of his train. The engineman had a good record of thirty years' standing. This collision was reported in the *Railway Age* of September 6, page 420.

Texas & Pacific, Mellville, La., August 21, 1924.—A westbound freight train, on a long side track, being pushed slowly by its engine, which was at the rear, was moved beyond the fouling point and collided with the side of eastbound passenger train No. 20, which had stopped to take water, damaging the sides of two passenger cars. One passenger was killed and 18 passengers and six employees were injured. This accident occurred at 2:27 a. m., and the cause was the giving of a proceed signal by the brakeman at the rear of the freight when he did not receive any such signal from the front end of the train. The inspector thinks that the brakeman who gave the wrong signal mistook some of the lights in the vicinity for a proceed signal.

Virginian, Glen Lyn, Va., September 1, 1924., 1:00 a. m.—Eastbound freight train extra 712, made up of 81 cars of coal, was derailed by a landslide in a cut, while moving at about 20 miles an hour. No trouble had ever been experienced with slides in this cut except in rainy weather. There was a suspicion that a rock which had fallen from a point 25 ft. above the track had been maliciously loosened, but the inspector could find no definite evidence of anything of the kind.

Missouri-Pacific, Howcott, La., September 5.—By the mistake of an engineman in reading a train order, a southbound regular freight train, moving at about 18 miles an hour, collided with a northbound extra freight train moving at about 12 miles an hour and, immediately following the collision, the boiler of the locomotive of the southbound train exploded; and a part of the wreck was destroyed by fire. Three employees and two trespassers were killed and five employees injured. The southbound train had run a mile beyond the point where it should have met the northbound. The conductor of the southbound made some effort to stop his train, but he delayed action until he had reread his train order, and he accomplished nothing. The engineman of this train also read the order twice, but through error, he read the wrong line, a line referring to another meeting point and read 11:05 instead of 11:10. He should have waited at Howcott until 11:10. The engineman acknowledged full responsibility for his oversight, but the inspector finds various other contributing causes as follows:

The investigation of this accident developed many undesirable features. An engineman misread an order; a head brakeman did not remember the time his train was to wait for the opposing train; a conductor forgot how the order read; the crew of the opposing train was running on short time and was practically encouraged to do so; employees did not know the rules and thought it was all right to occupy the main track up to the time named in a wait order; employees were careless about comparing time with standard clocks; cars containing gasoline were placed much closer to the engine than permissible under the regulations; neither the crews nor car inspectors seemed to pay any particular attention to the making of proper air-brake tests, and car inspectors did not know what signals to use for applying and releasing the brakes. The development of these facts indicates conditions that should not be tolerated, and it is incumbent on the responsible officials of this railroad to see that these conditions are promptly corrected in order that the operation of trains may be properly safeguarded.

The final recommendation is that if an adequate block signal system had been in use this collision would not have occurred. The manual block system is ostensibly in force.

Louisville & Nashville, West Frankfort, Ky., September 7.—Locomotive No. 971, without train, moving backward from Bagdad, northward toward West Frankfort, collided with southbound train No. 137, second-class freight train of the Chesapeake & Ohio, which was moving at about 10 miles an hour. The engineman and fireman on No. 137 and the fireman of No. 971 were killed and one other employee was injured. The engineman of the southbound train ran past the meeting point in disregard of an order which he had received. The conductor is held negligent in not having taken prompt action when he saw that the engineman was over-running the meeting point. Had he or his brakeman exchanged signals with the man on the engine when approaching the meeting point, as is required by rule, it is probably that the collision would have been prevented. The report holds that the density of traffic on this section of the road calls for the installation of a block signal system.

Union Pacific, Oconee, Neb., September 9.—Westbound second-class mixed train No. 79, running at uncontrolled speed within yard limits, ran into the rear of westbound second-class mixed train No. 77, damaging the rear car of No. 77. A brakeman of No. 79 was killed and three other persons were injured. The report says that several rules are involved in the failure of the engineman to have the train under proper control. There is a time-table rule, in addition to rule 93, and also there is rule 98, which requires caution approaching a junction.

Chicago, Rock Island & Pacific, Harrell, Ark., September 22.—Eastbound passenger train No. 636, drawn by locomotive No. 1018, moving at about 35 to 40 miles an hour was derailed (all except the locomotive) and two cars fell down a bank. One passenger was killed and five persons were injured. The report attributes the derailment to the rocking of the tender as a result of lateral surge of water and oil, due to unevenness in the track and

to the speed. The locomotive in general was found to have been in good condition, but the side bearings of the tender were not evenly loaded. The water cistern had splash sheets crosswise but none lengthwise, while the fuel oil tank had no splash sheets. The water tank was about $\frac{3}{4}$ full and the oil tank nearly full. There were three low joints immediately west of the point of derailment, but it could not be said that these attributed to the cause. Because of imperfect drainage, the speed limit for all trains at this point is 40 miles an hour.

Michigan Central, Kalamazoo, Mich., September 24, 4:30 a. m.—Westbound passenger train No. 1, moving at high speed was derailed by striking an automobile which had been run off the end of the planks at a crossing. The truck wheels of the locomotive apparently ran off the rails at about 219 ft. beyond the crossing but the engine ran about 1,000 to a switch, before other wheels were derailed. The engineman was killed and 25 passengers and two trainmen were injured. Burt Hilton, driver of the automobile, 17 years of age, was employed at a factory near the crossing and was on his way from work. He claimed that he stopped before proceeding over the crossing. This was some little time before the train came on, and he had endeavored to get his car back into the road. A stranger came along and helped him, but they did not succeed. When Hilton saw the headlight of the approaching train he started eastward with the hope of stopping it but he got only a few yards. Hilton had a license and had been operating an automobile for about two years. He used this crossing twice daily. The crossing is watched at certain hours, but not at 4:30 a. m. The engineman of the train having been killed, it could not be determined whether or not he saw the signal given by Hilton or whether he realized that the automobile had thrown his truck wheels off the rails.

Chicago, Rock Island & Pacific, Des Moines, Iowa, September 24, 8:40 p. m.—Eastbound freight train No. 80, having been stopped by the bursting of an air hose, was run into, about five minutes afterwards, by a following extra freight, which was moving at about twenty miles an hour. Six cars were wrecked and the engineman of the extra was killed. One other employee was injured. The engineman of the extra is held responsible for having failed to keep his speed under control within yard limits.

Disk Bearings for Railway Car Journals

THE Wollmar Engineering Corporation, New York, is introducing a disk bearing for use on railway cars which is said to have all the advantages of ball and roller bearings with additional carrying capacity. The construction of these bearings, which are known as NKA disk bearings, is shown in Fig. 1. It will be noted in the drawing Y that the rolling surface of the disks has a radius of curvature larger than the diameter. The disks run in race grooves which are so dimensioned that practically the entire width of the roller comes in contact with the groove when the bearing is under load. This gives nearly a line contact between the rollers and groove which permits them to be self-guiding and allows a larger load carrying capacity.

The self-guiding feature may be explained by referring to the drawing Z, Fig. 1. If we consider each disk to be cut from an ellipsoid of rotation and placed between two flat surfaces as shown at Z, the ellipsoid will roll on

the smallest great circle and the contact surfaces will be symmetrical with the points *D* and *E*. If, for example, the disk should tend to turn to the right in the plane of the paper and the bearing continues to rotate, the ellipsoid will appear as shown on the dotted line with the points of contact moved to *F* and *G*. These points not being opposite to each other will produce a moment which will turn the

the axial stresses. If a bearing is subjected to both axial and radial stresses, the various disks have different angles of reaction, the degree of which is decided by the resultant force which is exerted on them. The self-guiding properties of these disks have been verified by practical trials with bearings run without a cage. Their shape permits them to be inserted between the races shown at *A* in the

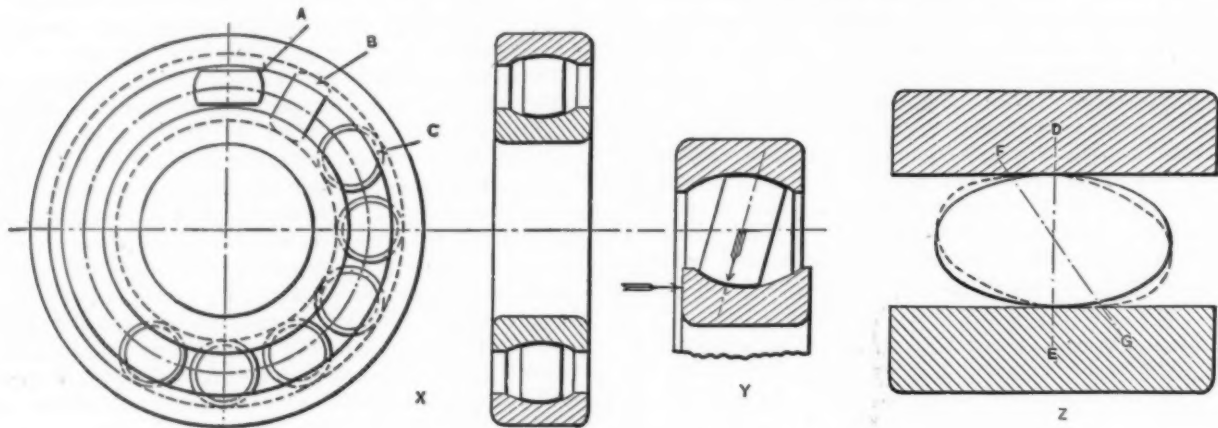


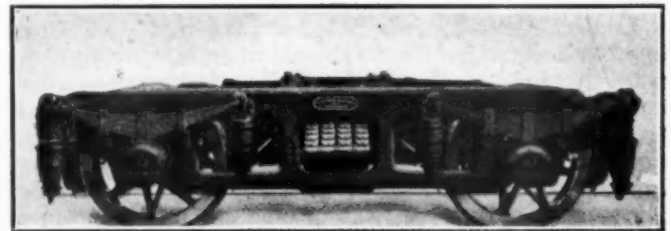
Fig. 1—Drawing Showing the Construction of the NKA Disk Bearing

disk to the left in the plane of the paper and back to its normal position. This action of the ellipsoid has been termed statical self-guiding. This statical self-guiding, however, is not sufficient to produce even running of the disks, because if the bearing is subject to radial pressure one-half of the disks will be without pressure and statical self-guiding cannot exist.

The moment of inertia about the normal axis of rotation is greater than the moment of inertia about any other axis due to the slight width. As a result, the disks are also termed to be dynamically self-guiding. It is well

drawing *X* of Fig. 1, twisted into position as shown at *B* and finally to the position *C*.

The NKA disk bearings have been used successfully on railway equipment of the Swedish State railways. The application of these disks to European railway equipment is shown in Fig. 2. Each journal has two bearings which



European Railway Truck with Disk Bearings

are located at the ends of the journal. This design permits a distribution of the loading over a larger surface and it is also claimed that it can withstand shocks and temporary overloading to great advantage which is a much desired feature.

The work of development on European railway equipment was conducted by the manufacturers, Nordiska Kullager Aktiebolaget, Gothenburg, Sweden, from which the bearing derives its trade name.

SAFETY ON THE HIGHWAYS has been made the subject of proposals for new legislation since January 1, in 38 states. This is the main feature of a statement which has been issued by Secretary of Commerce Hoover, making brief comments on the results which have flowed from the conference on street safety which was held in his office at Washington last December. Most of these proposed laws deal with various features of the regulation of automobiles. Many states still continue backward in their legislative regulation of highway safety. One legislature is considering a bill to repeal an existing law requiring automobiles to be stopped before passing over a railroad. Governors and other state officers have in numerous cases called conferences to consider highway problems. Activities in this direction are noted in Massachusetts, Michigan, Missouri, Rhode Island, Oregon, Texas and Nevada. Activity of this kind is also noted on the part of municipal officers in a large number of cities.

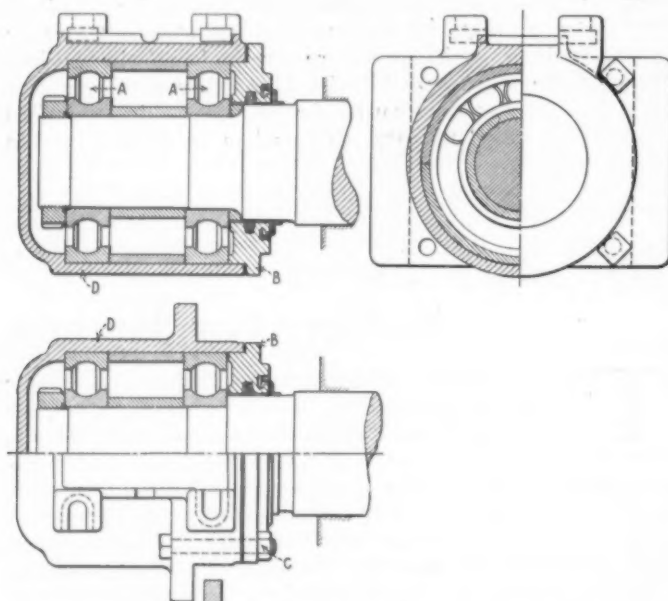


Fig. 2—Drawing Showing the Application of Disk Bearings to a Railway Car Journal

known that a free rotating body always tries to rotate about the axis with the greatest moment of inertia.

If the disk bearing is subjected to an axial pressure only, the resultant force on each disk makes an angle with the axis of rotation of the bearing, and the disks take a position as shown in drawing *Y* of Fig. 1 to react against

Freight Car Loading

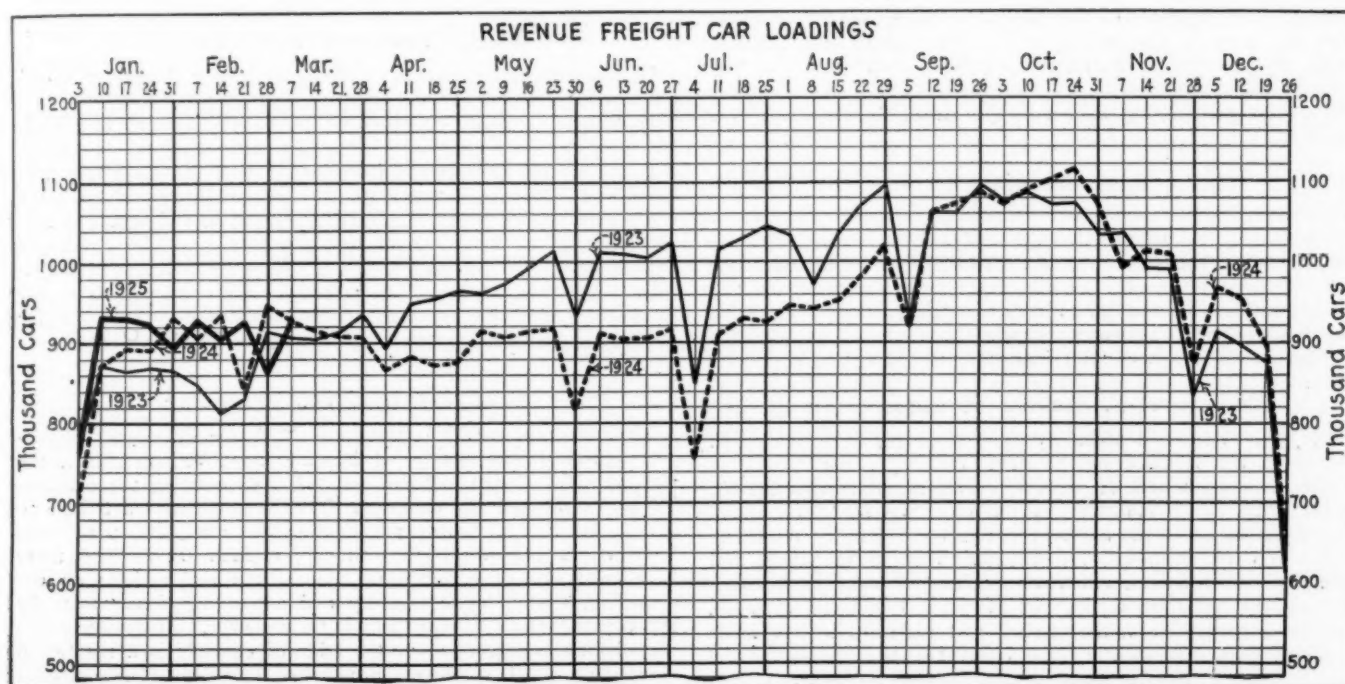
WASHINGTON, D. C.

REVENUE freight car loading for the week ended March 7 amounted to 930,009 cars, which is approximately the number at which it has been running for several weeks, with the exception of those in which holidays have occurred. This was, however, an increase of 628 cars as compared with the loading for the corresponding week of last year and an increase of 24,665 cars as compared with 1923, and the cumulative total for the year to date is still slightly above that for the corre-

138,425 coal cars. This was a slight increase over the previous figures. For the Canadian roads an average surplus of 27,915 cars was reported, including 23,840 box cars and 300 coal cars.

Car Loading in Canada

Revenue car loadings at stations in Canada during the week ended March 7 totaled 51,700 cars. Grain continued light, falling 574 cars below the previous week's loading. Coal loading was lighter in both the Eastern and the Western divisions. Pulpwood was lighter in the Eastern division, but merchandise and miscellaneous



sponding ten weeks of last year. Increases as compared with last year were shown in the Southern, Central Western and Southwestern districts, and also in the loading of merchandise and miscellaneous freight, but in all other districts and classes of commodities decreases were reported. Coal loading, which amounted only to 163,531 cars, showed a decrease of 6,261 cars. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

REVENUE FREIGHT CAR LOADING
Week Ended Saturday, March 7, 1925.

District	1925	1924	1923
Eastern	218,495	227,752	220,041
Allegheny	189,503	194,504	193,109
Pocahontas	41,773	43,469	35,919
Southern	155,919	148,995	146,564
Northwestern	119,446	120,353	118,586
Central Western	137,999	132,791	136,289
Southwestern	66,874	61,337	54,836
Total Western districts	324,319	314,661	309,711
Commodities			
Grain and grain products	43,945	46,288	41,498
Livestock	28,202	31,159	30,797
Coal	163,531	169,792	186,264
Coke	12,825	14,324	15,240
Forest products	81,534	83,588	75,359
Ore	10,324	11,063	11,801
Misc. l. c. l.	257,337	250,623	229,152
Miscellaneous	332,311	322,544	315,235
Total	930,009	929,381	905,344
February 28	862,910	944,514	918,624
February 21	925,295	845,699	830,187
February 14	902,877	935,589	816,646
February 7	928,244	906,017	849,352
Cumulative total, ten weeks	9,000,328	8,855,470	8,559,532

The freight car surplus for the week ended February 28 averaged 285,015 cars, including 103,177 box cars and

freight showed increases. Compared with the same week last year the loading was lighter by 5,829 cars.

Commodity	Total for Canada			Cumulative totals to date	
	Mar. 7 1925	Feb. 28 1925	Mar. 8 1924	1925	1924
Grain and grain products	6,230	6,704	8,089	64,053	82,844
Live stock	2,266	1,815	2,282	22,488	20,672
Coal	4,152	6,074	5,418	59,232	46,021
Coke	339	321	269	3,117	2,722
Lumber	2,863	2,798	3,908	37,630	29,584
Pulpwood	3,725	4,041	5,143	40,285	37,308
Pulp and paper	2,418	2,416	2,393	21,225	21,690
Other forest products	3,380	3,646	3,852	32,359	30,474
Ore	1,277	1,079	942	11,371	8,817
Merchandise l. c. l.	14,778	14,115	13,975	135,238	121,688
Miscellaneous	10,272	9,408	11,258	95,333	99,593
Total cars loaded	51,700	52,417	57,529	512,331	501,413
Total cars received from connections	33,373	32,540	40,780	329,179	338,174

THE ROADS AND HIGHWAYS COMMITTEE of the Missouri state Senate has approved a bill placing bus lines in cities and between cities and towns in Missouri under the regulation of the Public Service Commission of that state. The bill also provides that steam railroads, street railways and electric interurban lines may operate buses without the organization of separate corporations.

NEARLY A MILLION sacks of cement have been used in the lining of the Connaught tunnel of the Canadian Pacific through McDonald mountain in the Selkirk Range, which is the largest undertaking of its kind on the American continent, according to C. A. Cotterell, in charge of the construction. The tunnel is now lined throughout its entire length of five miles with a jacket of concrete 12 in. thick.

General News Department

The Canadian National will soon establish a new radio broadcasting station at Vancouver, B. C., similar to those that it now operates at Montreal, Toronto, Winnipeg and other points.

J. Pickard, assistant traffic manager, and W. R. Davidson, assistant chief engineer of the New Zealand Government Railways, are now in Canada on a tour of Canada, the United States, Europe and India to study railway conditions for the New Zealand Department of Railways. The New Zealand railways are considering a broad program of development and extension.

A Correction

It was erroneously stated in this column last week that B. L. Winchell, chairman of the Remington Typewriter Company, was formerly vice-president of the St. Louis-San Francisco and the Chicago, Rock Island & Pacific. As almost everybody in the railroad business knows, Mr. Winchell was president of the Chicago, Rock Island & Pacific for almost six years and subsequently president of the St. Louis-San Francisco for four years.

John F. Stevens Honored

The John Fritz Gold Medal is to be presented to Col. John F. Stevens at the Engineering Societies Building, New York, on Monday evening, March 23, at 8:30. This medal is awarded for notable scientific or industrial achievement, the board of award being composed of 16 representatives, four each from the American Society of Civil Engineers, the American Institute of Mining and Metallurgical Engineers, American Society of Mechanical Engineers and the American Institute of Electrical Engineers. John R. Freeman is to preside at the meeting and addresses will be made by Ralph Budd, president of the Great Northern Railway, and Hon. Roland S. Morris, formerly Ambassador to Japan. Ladies as well as gentlemen will be welcome at the meeting.

Investigation of N. P. Land Grants

The joint Congressional committee appointed to investigate the Northern Pacific land grants began hearings at Washington on March 18, with Charles Donnelly, president of the Northern Pacific, as the first witness. Mr. Donnelly gave a statement going into the early history of the land grant and the construction of the road. The committee was appointed under a resolution adopted last June, following preliminary hearings before the committees on public lands of the Senate and the House, but it was delayed in beginning its investigation because the bill carrying an appropriation of \$50,000 for its expenses failed of passage during the first session of the Sixty-eighth Congress and was only passed during the second session recently concluded.

Expenditures of the Canadian Railways

Of all the coal used in Canada the steam railways consume over 25 per cent, and their coal bill in 1923 amounted to \$58,586,000, according to a bulletin on consumption of materials in construction and maintenance by transportation companies in Canada in 1922-23. During 1923 the steam roads spent \$175,756,000 for maintenance and \$59,000,000 for additions and betterments, or a total of \$234,756,000 for materials and labor. Their total payroll for operation, maintenance, etc., was \$253,320,000 and they employed an average of 178,452 persons or about one-third as many persons as all manufacturing plants in Canada.

Ties and rails are by far the most important commodities used in construction, costing about \$13,000,000 and \$12,000,000, respectively, in 1922 and 1923. The cost of ties has been increasing very rapidly, due not only to increased numbers used but to higher prices. In 1911 the average price per tie of all grades ranged from 23.5 cents to 67.2 cents with an average of 43.8 cents. By 1921 the average price had increased to 98.3 cents, oak ties

averaging \$1.91, treated ties \$1.72 and the cheapest ties being No. 3's at 44 cents apiece and in 1923 the average price per tie was 92.9 cents. The wholesale price of steel rails has increased 66 per cent since 1913, averaging \$50 per ton in 1923 as against \$30.66 in 1913.

Wood Preservers' Association

On account of the growth of the work of the American Wood Preservers' Association, the office of secretary has been divorced from that of secretary-manager of the Service Bureau and E. J. Stocking has been appointed secretary with office at 111 West Washington street, Chicago, effective April 1. P. R. Hicks will continue as secretary-manager of the Service Bureau of the association with office at 10 South La Salle street, Chicago, devoting his full time to the work of that organization. The Executive Committee of the Wood Preservers' Association has also reconsidered the action taken at the annual convention relative to the location of the next meeting and has selected Cleveland for the convention which will be held on January 26-28, 1926.

L. & N. Employees' Magazine

The first issue of the Louisville & Nashville Employees' Magazine appeared this month. It has an attractive appearance, the striking color design in three colors commemorating the diamond jubilee of the railroad company. The issue contains a tribute to Milton H. Smith, former president of the road, and a message from W. L. Mapother, who is now president. In addition there is a brief historical sketch of the railway and articles on the operating, traffic, legal, treasury and accounting departments by the vice-presidents having them in their charge. Prominently displayed on the page opposite the table of contents is a suggestion sheet upon which employees are invited to submit ideas on what the magazine should contain. The editor of the magazine is Thomas E. Owen.

Canadian Railways Minister Promises

Early Legislation on Freight Rates

"The freight rate situation in Canada at the present time is far from satisfactory for anybody, and for that reason the government will bring legislation as expeditiously as possible," was the statement made last week in the Canadian Parliament by George P. Graham, Minister of Railways and Canals, in answer to a question asked by Arthur Meighen, leader of the Conservatives. The latter had pointed out that the government in the speech from the throne at the opening of the session had stated that it would take steps in the direction of equalization of rates on Canadian railways. Now that the judgment of the Supreme Court of Canada was made public on the Crow's Nest Pass case, said Mr. Meighen, there was no excuse for further delay. The Minister, however, could give no undertaking as to the definite date on which the legislation would be introduced.

A Million Man-Hours with No Injuries

The Delaware & Hudson reports that the car shops at Colonie, N. Y., five miles north of Albany, were operated for one year, from March 7, 1924, to March 7, 1925, without having to report an accident to any employee; this with a force of 450 men working 1,015,000 hours.

It appears that, at the invitation of the State Industrial Commission of New York, an intensive campaign for safety was begun on March 1, 1924, to be continued three months; but the Colonie shops, after making an energetic start, found it necessary to report an injury in the very first week. This disappointment, however, instead of discouraging the men, incited them to greater zeal, with the result that they have now shown a clear record for 12 months.

This very unusual result was made the occasion of a celebration at the shops on March 12, attended by officers of the road and other visitors; and there was a parade, with music. The employees parading, advertising themselves as "advocates of safety," were preceded by a small squad of men walking with crutches, and bandaged as though just out of a hospital, who bore a banner designating them as "Employees of 1923."

Colonel J. T. Loree, general manager of the road, briefly reviewed the safety work of the company, under John E. Long, and sketched the progress that had been made during the past few years. He brought to the men also the congratulations of L. F. Loree, president of the road. Colonel Loree said that the Delaware & Hudson, which was organized as the Delaware & Hudson Canal Company, some years before the advent of railroads, had conducted its business for 100 years, up to the end of 1923, without having a passenger killed by the fault of the company.

The exercises, which were conducted under the chairmanship of T. A. Heminway, division car foreman, were enlivened with singing by the car department quartet, Messrs. Ruhtz, Heffern, Keefe and Clickner; and by the shop band.

C. M. & St. P. Military Organization

The 609th Engineers' Battalion of the United States Army, the military railway organization on the Chicago, Milwaukee & St. Paul, now has its commissioned personnel up to full peace strength, with 18 officers for the four companies, a headquarters company, an operating company, a maintenance of way company and a mechanical company. The enlistment of additional men for the ranks is now in progress, seven men having been enrolled already. This is believed to be the first reserve organization of its kind to have its commissioned personnel up to full peace strength. Norman A. Ryan, division superintendent at Terre Haute, Ind., where the battalion headquarters is located, is the commanding officer of the unit. The organization of the commissioned personnel of the battalion is as follows:

609TH ENGINEERS' BATTALION (C. M. & ST. P. RY.)

HEADQUARTERS

Name	Grade	Civilian Duty	Location
N. A. Ryan.....	Captain.....	Superintendent	Terre Haute, Ind.
I. C. Jordan.....	Captain.....	Staff of Vice-president.....	Chicago, Ill.
G. M. Hayden.....	Captain.....	Chief Dispatcher.....	Tacoma, Wash.
H. G. Bernard.....	1st Lieutenant.....	Dispatcher	Ottumwa, Iowa.
E. A. Lalk.....	1st Lieutenant.....	General Agent.....	Milwaukee, Wis.
J. G. Bruce.....	1st Lieutenant.....	Agent	Bozeman, Mont.

COMPANY A (M. of W.)

C. F. Allen.....	Captain.....	Roadmaster	St. Maries, Idaho.
N. F. Podas.....	1st Lieutenant.....	Assistant Engineer.....	Minneapolis, Minn.

Name	Grade	Civilian Duty	Location
V. Hansen.....	1st Lieutenant.....	Chief Carpenter.....	Montevideo, Minn.
R. V. Cummings.....	2nd Lieutenant.....	Freight Department.....	Great Falls, Mont.

COMPANY B (Mechanical)

E. Jones.....	Captain.....	Engineer	Spokane, Wash.
J. H. Hale.....	1st Lieutenant.....	General Foreman.....	Galewood, Ill.
H. Wallace.....	2nd Lieutenant.....	General Foreman.....	West Clinton, Ind.
R. C. Visger.....	2nd Lieutenant.....	Locomotive Engineer.....	Chicago, Ill.

COMPANY C (Operating)

F. R. Doud.....	Captain.....	Chief Dispatcher.....	Bellingham, Wash.
E. Kiese.....	1st Lieutenant.....	General Yardmaster.....	Dubuque, Iowa.
C. G. Ellis.....	2nd Lieutenant.....	Locomotive Engineer.....	Milwaukee, Wis.
C. G. Gepner.....	2nd Lieutenant.....	Night Chief Dispatcher.....	Terre Haute, Ind.

Canadian Railways Minister Argues for Control of Ocean Rates

Words of praise for the work done by the Dominion Railway Board were spoken in the House of Commons at Ottawa last Friday by George P. Graham, Minister of Railways and Canals, in the debate on the government's proposed measure to control ocean freight rates. "I am a full believer," said Mr. Graham, "in the work done by the Board of Railway Commissioners, and I believe that we should have been in a much more chaotic state in this country had we not had some authority to which to refer our railway problems. The United States has had an interstate board with, I believe, less authority perhaps than is the case in Canada. They have problems which perhaps are more difficult to solve than ours owing to the fact that their state incorporation and control of railroads in the various states is more marked than is our provincial control; for although it is not here a matter of statute, it has become largely a matter of practice that steam roads should be under the Dominion Railway Board. But after the Dominion Railway Board had settled down to work and had established a basis of rates, the people discovered that no matter how fair a rate might be by land, say from west to the east or vice versa, it was within the power of the shipowners by increasing rates on the ocean to nullify all benefits the people might receive by a reduction in the cost of land carriage. For example, if one company owned a railway and a steamship line as well, it made no difference very materially to that company where the rates were placed on land, so long as they could place the rates on the ocean at a point that would make up for all that they lost in railway carriage. And what was applicable to companies owning both a railway and a steamship line was applicable generally, inasmuch as other railways would have traffic arrangements with ocean vessels, by which the two carrying systems could so adjust their rates that, no matter

OPERATING REVENUES AND OPERATING EXPENSES OF CLASS I STEAM ROADS IN THE UNITED STATES

(FOR 192 STEAM ROADS, INCLUDING 16 SWITCHING AND TERMINAL COMPANIES)

FOR THE MONTH OF JANUARY, 1925 AND 1924

Item	United States		Eastern District		Pocahontas Region		Southern Region		Western Region	
	1925	1924	1925	1924	1925	1924	1925	1924	1925	1924
Average number of miles operated.....	236,528.73	235,925.55	59,417.65	59,469.22	5,513.22	5,455.53	38,474.08	38,331.84	133,123.78	132,672.96
Revenues:										
Freight.....	\$350,619,126	\$333,433,434	\$154,390,484	\$152,045,540	\$17,309,799	\$15,051,870	\$48,622,677	\$46,628,064	\$130,296,166	\$119,707,960
Passenger.....	88,673,903	91,721,258	42,412,061	42,270,456	2,010,868	2,094,064	14,264,076	14,305,286	29,986,898	33,051,452
Mail.....	8,107,291	7,906,122	3,095,433	3,044,354	216,919	191,474	1,165,236	1,128,801	3,629,703	3,541,493
Express.....	10,764,475	10,478,025	5,104,325	4,606,516	296,355	235,895	1,476,815	1,426,149	3,886,980	4,209,465
All other transportation.....	15,843,998	14,894,650	9,063,135	8,561,094	179,894	148,898	903,201	843,554	5,697,768	5,341,104
Incidental.....	9,992,275	9,678,767	5,004,846	4,970,692	335,492	340,935	1,383,127	1,157,459	3,268,810	3,209,681
Joint facility—Cr.....	994,067	1,081,748	487,074	384,138	15,217	17,612	124,514	143,003	367,262	536,995
Joint facility—Dr.....	221,547	207,797	107,534	84,681	1,958	1,994	29,796	30,914	82,259	50,208
Ry. operating revenues.....	484,773,588	468,986,207	219,449,824	215,798,109	20,362,586	18,078,754	67,909,850	65,601,402	177,051,328	169,507,942
Expenses:										
Maintenance of way and structures.....	56,971,378	55,332,831	25,409,227	23,790,943	2,526,137	2,304,475	9,116,283	8,639,477	19,919,731	20,597,936
Maintenance of equipment.....	108,352,732	110,322,360	52,318,075	53,569,811	4,891,554	4,674,944	13,629,760	13,765,348	37,513,343	38,312,257
Traffic.....	8,499,821	8,092,862	3,105,887	3,031,453	222,655	202,336	1,547,650	1,539,087	3,623,629	3,319,986
Transportation.....	191,765,814	193,820,792	89,710,354	91,613,646	6,277,103	6,419,946	25,294,514	25,656,941	70,483,843	70,130,259
Miscellaneous operations.....	4,353,833	4,213,190	2,164,901	2,050,882	87,409	81,698	548,728	447,571	1,552,795	1,633,039
General.....	14,440,897	14,383,124	6,421,673	6,382,590	469,416	414,821	1,861,582	1,859,929	5,688,226	5,725,784
Transportation for investment—Cr.....	649,668	1,073,154	95,101	120,377	20,983	14,696	142,455	111,539	391,129	826,542
Ry. operating expenses.....	383,734,807	385,092,005	179,035,016	180,318,948	14,453,291	14,083,524	51,856,062	51,796,814	138,390,438	138,892,719
Net revenue from railway operations.....	101,038,781	83,894,202	40,414,808	35,479,161	5,909,295	3,995,230	16,053,788	13,804,588	38,660,890	30,615,223
Railway tax accruals.....	27,302,721	25,690,017	10,624,876	10,126,475	1,227,309	1,151,676	3,745,017	3,187,537	11,705,519	11,224,329
Uncollectible ry. revenues.....	144,929	156,777	77,406	72,374	3,636	1,350	13,801	17,541	50,086	65,512
Railway operating income.....	73,591,131	58,047,408	29,712,526	25,280,312	4,678,350	2,842,204	12,294,970	10,599,510	26,905,285	19,325,382
Equipment rents—Dr. bal.....	6,059,191	5,097,513	3,010,255	3,109,688	427,381	439,164	695,736	355,853	2,780,581	1,971,136
Joint facility rent—Dr. bal.....	1,689,948	1,562,673	765,226	729,918	93,119	116,773	147,612	115,873	683,981	604,109
Net ry. operating income.....	65,842,002	51,387,222	25,937,045	21,444,706	5,012,612	3,064,595	11,451,622	10,127,784	23,440,723	16,750,137
Ratio of expenses to revenue (per cent).....	79.16	82.11	81.58	83.56	70.98	77.90	76.36	78.96	78.16	81.94

a Includes \$2,977,852 sleeping and parlor car surcharge. b Includes \$2,751,914 sleeping and parlor car surcharge. d Deficit or other reverse items. Compiled by the Bureau of Statistics, Interstate Commerce Commission. Subject to revision.

how you might control the land rate, the ocean rate could be so fixed as to wipe out any benefit that the shippers might otherwise receive."

The Canadian Railways in 1924

A close similarity marks the operating performances of the Canadian Pacific and Canadian National (lines in Canada only) during 1924, according to statistics just issued by the Dominion Bureau at Ottawa. The decrease in the operating revenues of the Canadian National (Canadian lines) was a little over \$13,000,000, while the decrease on the Canadian Pacific was a little over \$12,000,000. The decrease in operating expenses on the Canadian National (Canadian lines) was over \$13,000,000, while that on the Canadian Pacific was a little over \$12,000,000, and the decrease in the net operating revenue of the Canadian National was only a little over \$86,000, while the decrease on the Canadian Pacific was over \$250,000.

Operating revenues of the Canadian National (Canadian lines) in 1924 totaled \$201,224,493.13, while those of the Canadian Pacific were \$180,796,044.12; operating expenses of the Canadian National (Canadian lines) were \$189,460,403, while those of the Canadian Pacific were \$143,258,643; and net operating revenue of the Canadian National (Canadian lines) was \$11,764,089, and that of the Canadian Pacific \$37,537,400.

CANADIAN NATIONAL—OPERATING REVENUES

	1924	1923
Canadian Lines.....	\$201,224,493.13	\$214,787,207.46
Duluth, Winnipeg & Pacific.....	2,176,474.81	2,361,757.41
Grand Trunk Western Lines.....	29,591,984.53	32,471,522.74
New England Lines.....	2,595,230.08	3,515,000.00
Total	\$235,588,182.55	\$253,135,487.61
Operating Expenses		
Canadian Lines	\$189,460,403.90	\$202,936,658.84
Duluth, Winnipeg & Pacific.....	1,924,405.28	2,081,762.15
Grand Trunk Western Lines.....	23,881,316.76	23,679,714.70
New England Lines.....	3,077,805.13	4,006,702.84
Total	\$218,343,931.07	\$232,704,838.53
Net Operating Revenues		
Canadian Lines	\$11,764,089.23	\$11,850,548.62
Duluth, Winnipeg & Pacific.....	252,069.53	279,995.26
Grand Trunk Western Lines.....	5,710,667.77	8,791,808.04
New England Lines.....	Dr. 482,575.05	Dr. 491,702.84
Total	\$17,244,251.48	\$20,430,649.08
Operating Income		
Canadian Lines	\$12,036,882.49	\$11,848,593.55
Duluth, Winnipeg & Pacific.....	219,833.38	83,783.86
Grand Trunk Western Lines.....	822,906.45	2,928,743.09
New England Lines.....	Dr. 1,389,827.84	Dr. 1,622,028.51
Total	\$11,689,794.48	\$13,239,091.99

Operating figures of the Canadian National System for the month of December only are as follows:

	1924	1923
Canadian Lines	\$16,440,196.47	\$19,481,458.50
Duluth, Winnipeg & Pacific.....	190,646.81	169,745.00
Grand Trunk Western Lines.....	2,365,707.53	2,502,396.88
New England Lines.....	320,185.74	499,507.18
Total	\$19,316,736.55	\$22,653,107.56
Operating Expenses		
Canadian Lines	\$14,286,131.30	\$16,647,233.44
Duluth, Winnipeg & Pacific.....	179,333.37	149,068.15
Grand Trunk Western Lines.....	1,750,578.95	1,788,326.86
New England Lines.....	340,409.48	360,919.42
Total	\$16,556,453.10	\$18,945,547.87
Net Operating Revenues		
Canadian Lines	\$2,154,065.17	\$2,834,225.06
Duluth, Winnipeg & Pacific.....	11,313.44	20,676.85
Grand Trunk Western Lines.....	615,120.88	774,070.02
New England Lines.....	Dr. 20,223.94	138,587.76
Total	\$2,760,283.45	\$3,707,559.69
Operating Income		
Canadian Lines	\$2,235,772.22	\$2,674,627.58
Duluth, Winnipeg & Pacific.....	11,776.83	40,560.76
Grand Trunk Western Lines.....	235,124.69	168,482.38
New England Lines.....	Dr. 82,794.49	104,258.50
Total	\$2,399,879.25	\$2,987,929.22

Operating revenues of the Canadian Pacific Railway for the month of December totaled \$15,527,360.16, as compared with \$18,889,985.88 in the same month in 1923; operating expenses were \$10,973,312.30, as compared with \$13,895,008.65; and operating income was \$3,729,301.45, as compared with \$3,956,127.48.

Traffic News

The Interstate Commerce Commission has ordered an investigation of the question of the establishment of through routes and joint rates, and divisions on traffic via the Mississippi Central, Bonhomie & Hattiesburg Southern, Gulf, Mobile & Northern and Louisiana & Arkansas and their connections, from, to, or via points on the Bonhomie & Hattiesburg Southern.

The Atchison, Topeka & Santa Fe's new line from Los Angeles to the Los Angeles Harbor district cannot be put in operation because of disagreements within the city council of Los Angeles over the terms on which the road shall be granted entrance into the district. This harbor line was built more than a year ago, with the understanding that a connecting belt line would be built immediately by the city. The belt line has not been built, however, and the Santa Fe is left with a costly, unused branch.

Great Lakes Regional Advisory Board

The Great Lakes Regional Advisory Board held its eleventh meeting at Lansing, Mich., on March 10, with an attendance of about 500 representatives of shippers and a good representation of the railroads. Reports were made by the different committees showing uniformly favorable conditions in all directions.

The operation of the car ferries on Lake Michigan has been more successful and less disturbed by ice than for many years. Car loads of automobiles, shipped in January in this region totaled 33,817 and in February 38,350. The beet sugar committee estimates that the number of cars required by that industry for the season will be about 34,272 for carrying beets to the factories and about 13,000 for carrying away the products.

A resolution was adopted to the effect that the American Railway Express ought to participate in the activities of the Board. The Erie Railroad received favorable mention for having used the bills of fare in its dining cars to advertise the Board, including a map showing its territory.

The Mechanical Division of the American Railway Association was requested to investigate certain conditions connected with box cars having steel roofs; furniture loaded in such cars has in some cases been wet by drippings from the roof, due to sweating.

The next meeting will be held at Toledo, Ohio, on June 9.

Wheat Prices and Freight Rates

Economic factors other than freight rates have been responsible for the wide fluctuations in farm prices received for wheat during the past eighteen months, according to a study just completed by the Bureau of Railway Economics. The study developed that:

The farm prices of wheat fluctuated during the whole period, the general trend of the fluctuations being consistently upward; The freight rates on wheat were practically stationary throughout the same period;

Other economic factors than freight rates were responsible for the fluctuations in farm prices.

The study covers the prices paid from August, 1923, to January, 1925, at 144 points of origin in 21 states.

Marked fluctuations not only occurred between different kinds and grades, but occurred also upon the same reported grade at different points on the same day. Prices were different on the same reported grade of wheat on the same day at different origin points, even though the freight rate to primary market from those points was the same, or practically the same. In some cases the farm prices on wheat from points with a higher freight rate to primary market were greater than the farm prices from points with a lower freight rate. The spread between the highest and lowest prices recorded during the period was in most cases several times the total freight rate to market.

In respect to fluctuations in wheat prices, the study shows that for No. 2 hard winter wheat sold by farmers at Coldwater, Kansas, a price of \$1 per bushel was received on August 29, 1924, while on January 16, 1925, they received \$1.75 despite the fact that freight rates to Kansas City, which is a primary market for this product, remained stationary at 12.3 cents a bushel. Similar fluctuations were found in Ohio, Nebraska and elsewhere.

I. C. C. Assigned Car Order Attacked in Courts

The litigation which has been expected ever since the issuance of the Interstate Commerce Commission's order in the assigned car case, of December 23, 1924, has now been started both by the railroads and by a number of large shippers, that are owners of a large number of private coal cars affected by the order, by petitions for injunctions to set aside the order filed recently in various courts. Thirty-five railroads joined in the bill in equity filed in the federal court at Philadelphia on March 12 asking for an order enjoining and setting aside the order as beyond the power of the commission to issue; and petitions to set aside that part of the order pertaining to the use of privately owned cars had been filed earlier in the same court by the Bethlehem Steel Company and several coal companies; while the Ford Motor Company had filed a similar one in the federal court at Covington, Ky.

The order of the commission which is attacked found that the practice of railroads of assigning private cars, and system or foreign-line cars for railway fuel, to bituminous coal mines in excess of the ratable share contemporaneously distributed to mines upon their lines which do not receive assigned cars, was unjust and unreasonable, unduly discriminatory and unduly prejudicial, and ordered the practice discontinued on March 1, 1925.

According to the petition of the railroads the effect of this would be to deprive them of lawful and effective means of procuring at all times suitable coal in dependable volume; and the petition alleges that the discrimination was not a discrimination in public transportation facilities or service and thus was not within the provisions of the law which forbid unjust discrimination and undue preference. The order as to private cars, the railroads said, would operate to reduce the number of cars available for transportation and deprive the carriers of revenue to the extent that such cars might not be placed at mines designated by the owners in excess of the pro rata allotment.

The petitions of the private car owners in general took the position that the order would deprive them of the use of their property by requiring that private cars in times of shortage must be distributed pro rata among the mines, or kept idle until the number of railroad cars available for distribution should increase so as to entitle the owners to the use of all their cars.

P. R. R. Automobiles on the Highways

The Pennsylvania Railroad now uses motor trucks to replace way freight trains in the transportation of less than carload traffic, on about 1,000 miles of railroad and serving 500 stations. This was the main point in the introduction to an address by F. J. Scarr, supervisor of motor operation of the Pennsylvania, in a recent address at Philadelphia before the Wholesale Grocers' Association of Pennsylvania, New Jersey and Delaware. Mr. Scarr discussed at some length the use of auto trucks from station to station within cities. In this also the Pennsylvania is making progress. At Baltimore it is consolidating at and distributing from its two principal stations, Calvert and President, all less than carload freight.

On store-door delivery Mr. Scarr said in part:

"The railroads stand ready to co-operate in the accomplishment of any plan that offers a possibility of success and that recognizes the responsibilities of all parties. The Pennsylvania is prepared to follow to a conclusion in co-operation with any and all interested parties, a plan looking to the accomplishment of 'door to door delivery' along the following general lines:

- (1) Door to door delivery must be established gradually.
- (2) Co-operative action by all railroads is both desirable and essential.
- (3) The investment and business standing of existing truckmen must be protected.
- (4) The investment in existing rail facilities must be given full and just consideration.
- (5) The service must be optional.
- (6) The cost of this service must be borne by the shippers and receivers.
- (7) Drayage charges must be reasonable, but separate from and additional to existing rail rates.

"This entire problem is one of importance, involving mutual interests and mutual responsibilities. It can and will be solved. We are rapidly entering a period wherein the economies involved will force a correct solution and whether we assist or retard, proper co-ordination will eventually be attained. Real progress in this matter can be made by the wholehearted co-operation of the shippers, the automotive industry and the railroad. The two latter agencies have a responsibility to themselves and to their patrons, to reach a correct solution. These two agencies are co-operating in many ways."

Commission and Court News

Interstate Commerce Commission

The Interstate Commerce Commission will hold a hearing on April 27 in Seattle, Wash., to consider applications of north-western roads to reduce through passenger rates from Chicago, St. Louis and other mid-western terminals to the Pacific coast.

Governor Trinkle of Virginia and a delegation of citizens, called on Commissioner Hall, of the Interstate Commerce Commission, at Washington, on March 13, and protested against any proposal to merge the Virginian with either the Chesapeake & Ohio or the Norfolk & Western. They suggested instead that the Virginian be assigned by the commission either to the Detroit, Toledo & Ironton or to the New York Central. Mr. Hall, chairman of the consolidation committee, assured them that they will be afforded an opportunity to be heard before any such consolidation is approved by the commission.

Personnel of Commissions

George R. Lunn, former lieutenant governor of New York, has been appointed a member of the Public Service State Commission, in place of Oliver C. Semple.

Woodlock Re-nominated for I. C. C.

President Coolidge on March 18 resubmitted to the Senate his nomination of Thomas F. Woodlock, of New York, for appointment as a member of the Interstate Commerce Commission to fill

the vacancy caused by the resignation of Mark W. Potter. However, the Senate adjourned without taking any action toward confirmation of the appointment and it was expected that the President would make a recess appointment, which would hold until the Senate shall have had an opportunity to act at the next session. Mr. Woodlock's appointment was not acted upon by the committee on interstate commerce at the last session because of the opposition, particularly of southern Senators, who have long been contending for an appointment of a member of the commis-



T. F. Woodlock

sion from their section of the country and who objected to a New York Democrat, who is said to have voted for two Republican Presidents. Also, because Mr. Woodlock was formerly editor of a financial paper and because of his connection with railroad directorates he was opposed by largely the same element in the Senate that had opposed the President's choice of Charles B. Warren for attorney general.

Court News

Risk of Failure of Block Signal

Not Assumed by Engineman

The Arkansas Supreme Court holds, in an action under the federal Employers' Liability Act by an engineer for injuries received in a collision with the train ahead, that, where the engineman was permitted to enter the block without warning he did not assume the risk.—Missouri Pacific v. Warrick (Ark.) 262 S. W. 644.

United States Supreme Court

Clerk's Union Loses on Appeal

The suit by the Pennsylvania System Board of Adjustment of the Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employees seeking to enjoin the Pennsylvania from maintaining the same kind of alleged conspiracy as that described and complained of by Federation No. 90 in the suit reported last week, page 764, was decided in the same way, the decree dismissing the bill in that case being affirmed.

Limitation of Liability on Intrastate Shipment Under Western Classification Held Valid

In a suit for damages by a shipper against the Texas & Pacific for injury to a shipment of furniture from Fort Worth to Cisco, the question was whether the amount of damages to two rugs should be measured by the statutory law of Texas or by the regulation of the Interstate Commerce Commission, made in accordance with the decree by the Commerce Court of the United States, affirmed by the United States Supreme Court in *H. & T. C. v. United States*, 234 U. S. 342, known as the Shreveport case. The shipment moved under a bill of lading, approved by the I. C. C., limiting value of rugs to \$75 per 100 lb.

The Texas Court of Civil Appeals held that the agreement limiting the railroad's liability was invalid, as prohibited by article 708, Texas Revised Statutes. The case was brought to the United States Supreme Court on writ of error, on the ground that the order of the Interstate Commerce Commission fixing the classification and rates was invalid. If that order and the Western Classification No. 56 applied, the judgment of the Court of Civil Appeals should be reversed.

The United States Supreme Court, after discussing the findings and effect of the Shreveport case, said: "This Western Classification which the carrier applied in this case was adopted by the railroads under the authority of the Interstate Commerce Commission, which was sustained in the Shreveport case. That authority rested on the supremacy of Federal authority in respect to interstate commerce. * * * The Interstate Commerce Commission had full authority to order the adoption of the Western Classification for intrastate points between Houston and Cisco, both in Texas. The conflict between the revised statutes of Texas and the order of the Interstate Commerce Commission can only be settled by recognition of the supremacy of the Federal authority. The limitation of liability was in accordance with the second Cummins Amendment, was properly agreed to, and was binding upon the shipper as well as the carrier."

The judgment of the Texas Court of Civil Appeals was reversed and the cause remanded.—*Lancaster v. McCarty*. Decided March 9, 1925. Opinion by Mr. Chief Justice Taft.

Labor News

The Brotherhood of Locomotive Engineers has organized the California Brotherhood Investment Company with a capital of \$3,000,000. It is patterned after other investment companies of the brotherhood and will provide investment and financial service for members of the brotherhood in California, Nevada, New Mexico and Arizona.

Wage Statistics for 1924

The Interstate Commerce Commission has issued a summary of railroad wage statistics for the twelve months ended with December, 1924, a consolidation of the monthly summaries heretofore issued, with certain minor changes.

The average number of employees reported for the year was 1,777,391, a decrease of 102,379, or 5.4 per cent as compared with the preceding year. The total compensation was \$2,867,564,802, a decrease of \$175,596,361, or 5.8 per cent. Compared with the previous year, the average straight time hourly earnings for all employees reported on an hourly basis increased from 56.5 to 57.7 cents, and the average overtime hourly earnings increased from 76.8 to 80.4 cents. But owing to a reduction in the number of overtime hours worked, the percentage relation of overtime to total compensation decreased from 8.24 to 6.04.

The tables show, for employee groups: (1) the average annual compensation, the decrease in the average number of employees, and the increase or decrease in 1924, as compared with 1923; (2) the average straight time earnings per day or hour for the years 1924, 1923 and 1922, and last half of 1921; and (3) average earnings by districts for 1924. The reason for showing the last half of 1921 separately is that the present classification of employees became effective July 1, 1921. This is also the date of the general reduction in wages following the increases of 1920.

PENSIONS amounting to \$4,194,023 were paid to 1,259 retired employees of the Pennsylvania Railroad in 1924. In the quarter century of operation of the company's pension system the total payments have amounted to \$36,381,892. Altogether 17,665 employees have been retired and of these 7,934 are still living. The oldest now living is George J. Beebe, formerly watchman on the Elmira division, retired January 1, 1900. He is now 99 years old. Included on the pension rolls are 60 women. The oldest is Mrs. Catherine Price, formerly cleaner on the Baltimore division, 89 years old.

GOVERNMENT STATISTICS OF RAILROAD WAGES, YEARS 1923 AND 1924

Group	Average annual earnings of				Increase or decrease 1924 compared with 1923 in			
	Employees reported on daily basis		Employees reported on hourly basis		Employees		Compensation	
	Year 1924	Year 1923	Year 1924	Year 1923	Number	Per cent	Amount	Per cent
Executives, officials, and staff assistants.....	\$5,227	\$5,120	.....	.....	(d) 51	.3	\$1,471,960	1.8
Professional, clerical, and general.....	2,188	2,147	\$1,487	\$1,463	(d) 4,129	1.4	1,971,415	.4
Maintenance of way and structures.....	2,882	2,863	1,068	1,085	(d) 12,654	3.1	(d) 20,180,524	4.5
Maintenance of equipment and stores.....	2,943	2,922	1,470	1,513	(d) 54,898	9.3	(d) 105,347,897	11.5
Transportation (other than train, engine, and yard).....	1,175	1,157	1,479	1,451	(d) 7,056	3.3	(d) 4,688,840	1.5
Transportation (yardmasters, switch tenders, and hostlers)....	3,099	3,060	1,805	1,764	(d) 1,588	6.0	(d) 2,200,405	4.0
Transportation (train and engine service).....	.....	.....	2,294	2,283	(d) 22,003	6.4	(d) 46,622,070	5.9
Total (all employees).....	\$2,551	\$2,518	\$1,544	\$1,556	(d) 102,379	5.4	(d) 175,596,361	5.8

AVERAGE STRAIGHT TIME EARNINGS PER DAY OR HOUR,—BY EMPLOYEE GROUPS, YEARS 1924, 1923, 1922, AND HALF OF 1921

Group	Basis of reporting	United States				Eastern District	Southern District	Western District
		1924	1923	1922	1921	1924	1924	1924
Executives, officials and staff assistants.....	Daily	\$16.47	\$16.17	\$15.92	\$15.81	\$16.03	\$16.71	\$16.89
Professional, clerical and general.....	Daily	6.98	6.85	6.74	6.73	6.97	6.94	7.01
	Hourly	.579	.566	.564	.577	.583	.575	.576
Maintenance of way and structures.....	Daily	8.95	8.92	8.86	8.73	8.84	9.23	8.93
	Hourly	.429	.422	.416	.435	.477	.366	.422
Maintenance of equipment and stores.....	Daily	8.86	8.81	8.85	8.84	8.72	9.84	8.62
	Hourly	.586	.574	.584	.616	.625	.539	.566
Transportation (other than train, engine, and yard)...	Daily	3.28	3.24	3.24	3.30	3.13	3.58	3.56
	Hourly	.541	.529	.529	.540	.561	.469	.551
Transportation (yardmasters, switch tenders, and hostlers)	Daily	8.51	8.43	8.45	8.43	8.30	8.71	8.84
	Hourly	.629	.608	.606	.606	.631	.641	.617
Transportation (train and engine).....	Hourly	.763	.736	.736	.733	.763	.765	.763

Foreign Railway News

Conditions Improve in South Africa

LONDON.

The South African Railways had gross revenues of £21,594,644 in the fiscal year ended March 31, 1924, net earnings of £5,613,911 and a net after all capital charges of £1,724,641. The harbors under the control of the government earned a net of £319,573 after charges. These earnings enabled the government to reduce the accumulated deficit of its transport undertakings to £770,244 by March 31, 1924, and this was further reduced to £154,106 by the end of September.

The mileage of government owned lines on March 31 was 11,113 miles, 126 miles more than in 1923.

The Times (London) Trade Supplement summarizes the general manager's report, in part, as follows:

A number of locally constructed rail-motor vehicles of the converted road-omnibus type have been introduced, and with the object of gaining practical experience of types of rail motor-coaches in use in other countries orders were placed for a 68 h.p. Service car to seat 38 passengers and for a Sentinel-Cammell steam-coach to seat 40. Experiments have also been made with a tractor coach equipped with a 120 h.p. producer-gas engine and electric transmission. The fuel used for gas production is the char removed from steam locomotive smoke-boxes. The tractor has been in use between Kimberley and Winters Rush, hauling a composite passenger coach, and the results of the experiment have warranted the ordering of a 500 h.p. producer-gas tractor.

A number of cars have been converted to form a train to be used for purposes of agricultural demonstration. In addition to a coach and dining car for the technical and supervisory staff, the train contains 12 cars equipped for the demonstration of various forms of agricultural activity.

Twelve dining cars of the new "twin" type were being built in South Africa. They are 60 ft. long and operate in pairs, each pair comprising a restaurant car with 46 seats and another containing pantry, kitchen, and sleeping accommodation for the staff.

At times the train services were disorganized at several points by swarms of locusts settling on the right-of-way and frequently trains had to be divided to enable the loads to be hauled clear of the affected areas. In the Orange Free State and on the Midland division of the Cape, special trains were arranged, equipped with tank trucks fitted with pumping apparatus capable of spraying liquid poison on the swarms. Spraying tanks were also attached to special trains. The producer-gas locomotive was equipped with a small air-compressor which was used to project a spray of liquid poison through two lines of hose each 300 ft. long.

The report gives some details of the progress of the work on the electrification of the Natal main line between Glencoe Junction and Pietermaritzburg, a length of 175 miles, including a short section between Pietermaritzburg Station and Mason's Hill. At the time it was proposed the erection of the power station buildings at Colenso was well advanced. Of the five 12,000 kw. three-phase 6,600-6,750 volt alternators, one had been completed and two were nearing completion. The erection of four out of the five sets of condensers was well advanced, and the circulating water screens, through which the river water is drawn and which automatically clear themselves of debris, had been fixed in position. Two of the eight water-tube boilers, each capable of evaporating 60,000 lb. of water an hour, had been completed, and one had been in commission under a pressure of 200 lb. to 275 lb. per sq. in. The two filler pits, into which coal is discharged from bottom discharge wagons, had been completed, as also had been the inclined belt conveyors that run from the filler pits to the bunkers on top of the boiler house.

The work on the five 6,000-88,000 volt three-phase step-up static transformer sets for the sub-station adjacent to the power house was well advanced, and satisfactory progress had been made towards completion of the two 88,000-volt transmission lines which run on each side of the railway about half a mile apart. On the west side of the line 922 towers extending over 93½ miles had been erected, and on the east side 940 towers extending over 95½ miles.

Equipment and Supplies

Locomotives

THE WINSTON-SALEM SOUTHBOUND has ordered 2 Mikado type locomotives from the Baldwin Locomotive Works.

THE SALVADOR RAILWAY has ordered one Consolidation type locomotive from the Baldwin Locomotive Works.

THE FLORIDA EAST COAST is inquiring for six 8-wheel switching locomotives and 15 light Mikado type locomotives.

THE LEHIGH & HUDSON RIVER has ordered 4 Consolidation type locomotives from the Baldwin Locomotive Works.

Freight Cars

THE CHICAGO, ROCK ISLAND & PACIFIC is inquiring for 100 gondola car bodies.

THE ATLANTIC COAST LINE is inquiring for from 100 to 200 phosphate cars of 50 tons' capacity.

THE GRAND TRUNK WESTERN has ordered 25 caboose car underframes from the Pressed Steel Car Company.

THE ASIATIC PETROLEUM COMPANY, LTD., New York, has ordered one tank car from the American Car & Foundry Company.

THE BARRETT COMPANY, New York, has given a contract to the American Car & Foundry Company to make repairs to 141 tank cars.

THE UNION REFRIGERATOR TRANSIT COMPANY has ordered 2 steel frame refrigerator cars of 40 tons' capacity from the American Car & Foundry Company.

THE QUAKER CITY TANK LINE has ordered 250 stock cars of 30 tons' capacity and 100 refrigerator cars of 40 tons' capacity from the General American Car Company.

THE CENTRAL VERMONT has ordered 40 steel underframes for refrigerator cars and 70 steel underframes for flat cars from the American Car & Foundry Company.

THE PENNSYLVANIA SALT MANUFACTURING COMPANY, Philadelphia, Pa., has ordered 10 tank cars of 50 tons' capacity from the American Car & Foundry Company.

THE CITY SERVICE TANK LINE COMPANY, Tulsa, Okla., has ordered 783 steel tank cars from the American Car & Foundry Company. These cars are for use by the company's subsidiary car lines.

THE WESTERN FRUIT EXPRESS has ordered 225 steel underframes from the American Car & Foundry Company. Inquiry for a total of 750 underframes for this company was reported in the *Railway Age* of February 7.

SWIFT & COMPANY will build 300 refrigerator cars in its own shops. This company was incorrectly reported in the *Railway Age* of March 14 as having ordered these cars from the Illinois Car & Manufacturing Company. Inquiry for this equipment was reported in the *Railway Age* of February 21.

THE MISSOURI-KANSAS-TEXAS is inquiring for 500 steel underframe refrigerator cars 40 ft. long of 40 tons' capacity; 1,000 steel underframe, steel superstructure, single sheathed box cars, 40 ft. 6 in. long of 50 tons' capacity, and 300 drop-bottom, 16-door, composite general service gondola cars, 40 ft. 6 in. long of 50 tons' capacity.

Passenger Cars

THE NASHVILLE, CHATTANOOGA & ST. LOUIS has ordered 2 steel baggage cars 70 ft. long, from the American Car & Foundry

Company. Inquiry for this equipment was reported in the *Railway Age* of February 14.

THE NEW YORK CENTRAL has ordered 22 dining cars from the Pullman Car & Manufacturing Corporation. Inquiry for 10 dining cars was reported in the *Railway Age* of March 7.

THE SOUTHERN PACIFIC is inquiring for 32 passenger train cars as follows: 10 steel coaches 72 ft. long; 6 combination baggage and postal cars 70 ft. long, to have 30 ft. mail compartment; 5 steel baggage cars 70 ft. long; 6 baggage horse cars 70 ft. long, and 5 passenger baggage cars 72 ft. long. It has also issued an inquiry for one dynamometer car.

Iron and Steel

THE ATLANTIC COAST LINE is inquiring for 300 tons of steel for turntables.

THE FLORIDA EAST COAST is inquiring for about 600 tons of steel for bridges.

THE SEABOARD AIR LINE is inquiring for 700 tons of steel for a bridge in North Carolina.

THE DELAWARE, LACKAWANNA & WESTERN is inquiring for 800 tons of steel for bridges.

THE ST. LOUIS, TROY & EASTERN has ordered 2,800 tons of rail from the Illinois Steel Company.

THE READING COMPANY is inquiring for 3,500 tons of steel for a freight car repair shop at Reading.

THE ATCHISON, TOPEKA & SANTA FE has ordered 2,500 tons of tie plates from the Illinois Steel Company.

THE CHICAGO & NORTH WESTERN has ordered 2,000 tons of angle bars from the Illinois Steel Company.

THE NEW YORK, CHICAGO & ST. LOUIS has ordered 2,500 tons of tie plates from the Railroad Supply Company.

THE ST. LOUIS SOUTHWESTERN has ordered 4,000 tons of rail and a quantity of angle bars from the Illinois Steel Company.

THE ILLINOIS CENTRAL has ordered 267 tons of structural steel for an under crossing at 67th street, Chicago, from the American Bridge Company.

Machinery and Tools

THE VIRGINIAN RAILWAY is inquiring for about 10 machine tools, including 4 lathes, a horizontal boring mill, vertical boring mill, band saw and a planer.

THE PENNSYLVANIA CAR COMPANY has placed an order for two 6-ft. radial drills.

THE PACIFIC FRUIT EXPRESS is inquiring for one punch and shear, one band saw, one variety saw with mortising and boring attachments, one swing cut-off saw, one four-sided molder, one double-end emery grinder, one grindstone, one 1½-in. bolt threader, two blacksmith forges and one 25-in. sliding head upright drill.

THE ATCHISON, TOPEKA & SANTA FE is inquiring for one grinding machine, one rip and cut-off saw, one combination car wheel journal and axle lathe, one bolt cutter, one draw cut shaper, one 16-in. by 6-ft. portable engine lathe, one portable 250-ton hydraulic crank pin press, and one 1,600-lb. steam hammer, in addition to its previous list.

THE CAROLINA, CLINCHFIELD & OHIO is inquiring for a number of tools for its shops as follows: Freight car repair shop; one single end punch and shear 48-in. throat, with capacity to punch about 1½-in. holes through 1¼-in. plates, and with attachment for punching angles; a 500-lb., foot-operated power-driven hammer with motor; five oil rivet heating furnaces; two 30-ton electric traveling cranes, with three-ton auxiliary hoist, cranes to be 60-ft. span; one 1,200-ft. to 1,300-ft., motor-driven air compressor; two forges equipped for down draft and individual blowers; motors for freight car shop to be alternating current, 3-phase 60-cycle, 220 or 440 volts; one riveter for coupler yoke, about 15-in. gap by 18-in. reach. For its smith shop; ten single or five double forges equipped for down draft exhaust and individual blowers; a 500-lb. foot-operated hammer; a 4,500-lb. steam hammer; one electric flue welder; one spring forming machine; a 1½-in. forging machine for bolts, etc.; three jib cranes with hoists to serve hammers; an oil furnace about 6 ft. by 8 ft., for 4,500-lb. hammer; one case hardening furnace; three oil furnaces for bolt forging machines. For its woodworking shop; one iron frame drum and disc sander; a small planer; one 4-in. rip and band saw; one double-spindle shaper; one 6-in. four-side moulding machine; one gaining machine; one mortising machine. Inquiries are also being made for 15-ton or 20-ton self-propelling yard crane with magnet and generator for use on standard gage track; one heavy-duty locomotive tractor crane truck of 3,000 lb. capacity; one elevating tractor truck, and one shop tractor with trailer.

Miscellaneous

THE NEW YORK CENTRAL will receive bids until 12 o'clock noon March 30 for one steel lighter equipped with Diesel-electric engine.

THE NEW YORK CENTRAL will receive bids until 12 o'clock noon, March 31, for its requirements of black, galvanized and blue annealed sheets, seamless steel tubes, car and tender truck axles, wire nails and staples, steel bars, shapes and plates and steel billets.

LOCOMOTIVES ORDERED, INSTALLED AND RETIRED

Month—1924	Domestic orders reported during month	Installed during month	Aggregate tractive effort	Retired during month	Aggregate tractive effort	Owned at end of month	Aggregate tractive effort	On order first of following month	Building in R. R. shops
January	125	271	15,228,895	178	4,447,721	64,989	2,552,694,953	439	14
February	85	214	11,296,088	175	4,906,435	65,029	2,559,519,253	457	10
March	283	176	10,457,064	181	6,033,173	64,911	2,560,076,766	520	7
April	100	97	4,167,388	112	2,881,385	64,896	2,561,362,769	552	11
May	107	153	6,949,353	107	2,600,445	64,942	2,565,706,413	447	10
June	1	160	7,687,383	178	4,575,358	64,924	2,569,121,875	360	72
July	83	197	10,590,558	113	3,354,456	65,008	2,576,433,377	401	63
August	8	229	12,513,395	166	5,346,176	65,062	2,583,372,980	324	50
September	101	160	7,061,560	151	4,351,378	65,071	2,586,083,994	285	37
October	135	113	5,743,775	220	5,712,633	64,964	2,586,106,026	358	76
November	90	181	8,460,795	263	7,749,794	64,882	2,586,826,278	265	70
December	172	295	12,311,451	304	9,724,426	64,871	2,589,358,971	287	64
Total for year 1924.....	1,413*	2,246	.....	2,148	.....	.....	.....	.....	.....
January, 1925.....	27	167	7,455,971	213	6,242,079	64,824	2,590,525,478	280	81
February	49	...	.....	...	.....	.....	.....	...	...
Total for 2 months.....	86	...	.....	...	.....	.....	.....	...	...

Details as to orders from *Railway Age* weekly reports. Figures include all domestic orders placed with builders and railroad shops, but not rebuilt equipment.

Figures as to installations and retirements prepared by Car Service Division, A. R. A., published in Form C. S. 56A-1. Figures cover only those roads reporting to the Car Service Division. They include equipment received from builders and railroad shops. Figures of installations and retirements alike include also equipment rebuilt to an extent sufficiently so that under the accounting rules it must be retired and entered in the equipment statement as new equipment. Figure as to orders as given in first column of table is not therefore comparable with figures relating to installations given in succeeding columns.

*Corrected figure.

Supply Trade News

The Lehon Company, Chicago, has moved its New York office from 95 Liberty street to 60 Broadway.

C. C. Fredericks, vice-president and general manager of the W. N. Matthews Corporation of St. Louis, Mo., has resigned.

The Kansas City Bolt & Nut Company will construct a one-story plant 90 ft. by 240 ft. in Kansas City, Mo., at an estimated cost of \$23,000.

The Bettendorf Company, Bettendorf, Iowa, plans the construction of a three-story office building 76 ft. by 137 ft., to cost approximately \$175,000.

A. A. Boschert has been appointed sales engineer of the Harnischfeger Corporation, with headquarters at Seattle, Wash., to cover Washington and Oregon.

The John H. McGowan Company, Cincinnati, Ohio, has bought the Twinvolute Pump & Manufacturing Company, Newark, N. J., builders of centrifugal pumps.

M. B. MacNeille, chief engineer of the hydraulic department of Fairbanks, Morse & Company, with headquarters in Three Rivers, Mich., has been promoted to manager of the pump division.

J. C. Davis of the sales department of the Ohio Injector Company, with headquarters at Wadsworth, Ohio, has been promoted to assistant sales manager, with the same headquarters.

The Harnischfeger Corporation, Milwaukee, Wis., has prepared plans for a one-story brick and steel addition, 60 ft. by 88 ft., to the core room of its electric steel foundry in Bay View, Wis.

Joseph M. Welles has been appointed resident representative of the Standard Coupler Company, New York. Mr. Welles will have his headquarters in the Peoples Gas building, Chicago. He succeeds W. Eckels, resigned.

Heyl & Patterson, Inc., construction engineers, Pittsburgh, Pa., on April 1 will remove their eastern office from 90 West street to the Pershing Square building, 100 East Forty-second street, New York City. E. Logan Hill is eastern manager.

The Houston Car Wheel & Machine Company, Houston, Tex., is preparing plans for extensions, including a one-story building 75 ft. by 200 ft., the installation of an electric furnace, electric traveling cranes, heavy duty machine tools and auxiliary equipment.

The Union Railway Equipment Company, Chicago, has discontinued its sales arrangement with Hope E. Scott & Co., Ltd., of Montreal, Que., and in future until further notice all Canadian business will be handled direct from the general offices, Chicago.

William Bonn, formerly assistant general sales manager of the auto body plant of the Pullman Company has been appointed assistant general manager of the W. M. Laylor Company, railway sales representatives of the Zapon Company, with headquarters at Chicago.

Harry A. Flynn, who has served as general air brake supervisor of the Delaware & Hudson since 1904, has been appointed mechanical representative of the New York Air Brake Company in the New England territory, with headquarters at Boston, Mass. He succeeds N. A. Campbell, deceased.

R. P. Townsend has been appointed eastern assistant manager of the railroad department of Johns-Manville, Inc., with headquarters at New York. Mr. Townsend entered the service of the New York Central in November, 1906, after having graduated from Walworth Institute. He resigned in July,

1917, to become purchasing agent and later assistant to vice-president of the Liberty Steel Products Company, which later changed its name to the American Railway Appliances Company. Mr. Townsend resigned from that company in March, 1924, to enter the railroad department of the Murphy Varnish Company, which position he held until his new connection with Johns-Manville, Inc.

Chicago Pneumatic Tool Company

The annual report of this company for the year 1924 shows a net profit for the year of \$630,248 as compared with \$812,037 in 1923. The comparative income account for the years 1923 and 1924 follows:

	1924	1923
Net profits after providing for depreciation and for federal taxes.....	\$618,330	\$819,218
Add: Miscellaneous income.....	102,673	63,897
	\$721,003	\$883,116
Deduct: Interest on borrowed money.....	90,755	71,079
Net profit transferred to surplus.....	\$630,248	\$812,037
Surplus at December 31.....	\$5,434,429	\$5,216,544

Fairbanks, Morse & Co.

The annual report of Fairbanks, Morse & Co. for 1924 shows a net profit of \$2,056,838, after taxes and depreciation, equivalent, after preferred dividends, to \$4.74 a share earned on 350,227 shares of common stock outstanding. This compares with a net profit of \$2,722,339, or \$8.50 a share on the common stock in 1923. Cash dividend payments last year amounted to \$1,409,734, leaving a surplus of \$647,104 for the year, as compared with \$1,283,270 in cash dividends, a reserve of \$100,000 set aside for the preferred sinking fund, and a surplus of \$1,339,069 in 1923. On December 31, 1924, the company had current assets of \$19,050,961 and current liabilities of \$2,292,869, leaving a net working capital of \$16,758,093, as compared with a net working capital of \$14,994,368 at the end of 1923. The income account for 1924 compares with 1923 as follows:

	1924	1923
Operating profit	\$3,317,900	\$3,478,192
Other income	50,805	150,000
Total income	3,368,705	3,628,192
Depreciation	924,447	797,330
Pension fund	97,347	108,522
Income tax	290,041*	
Net profit	2,056,838	2,722,339
Preferred dividends	396,730	108,000
Common dividends	1,013,004	1,175,270
Sinking fund, preferred stock		100,000
Surplus	647,104	1,339,069
Earned on common	4.74	8.50

* Federal tax deducted from operating profit.

New York Air Brake Company

The annual report of the New York Air Brake Company for 1924 shows gross profit of \$2,164,068 for the year, after depreciation, reserves and expenses, against \$3,592,359 in 1923. After reserves for taxes, interest and other charges, the company reported net income of \$1,239,397, against \$2,526,487 in 1923. The net income for 1924 was equal to \$4.13 a share earned on both issues of stock, of which there are 100,000 shares of Class A and 200,000 shares of common stock, both without par value, outstanding. This compared with \$8.42 a share earned in 1923. Both issues share alike as to dividends, after the \$4 a share has been paid on both issues, but the Class A stock is preferred as to dividends to the extent of \$4 a share annually.

The detailed income account for 1924 and 1923 compares as follows:

	1924	1923
Gross profit	\$2,164,068	\$3,592,359
Other income	194,130	421,338
Total income	\$2,358,198	\$4,013,697
Exp. Fed. tax, etc.	918,015	1,248,336
Interest, etc.	200,786	238,874
Net income	\$1,239,397	\$2,526,487
Class A dividends	400,000	400,000
Common dividends	800,000	400,000
Surplus	\$39,397	\$1,726,487

*After depreciation.

C. A. Starbuck, president of the company, in his statement to stockholders, in part, said:

"The business outlook for the present year is encouraging. The bookings of new business for January and February have shown a decided improvement over those for the corresponding months a year ago; and, while equipment orders are not as large as they were during last year, bookings for repair business are showing a decided increase."

American Steel Foundries

The earnings from operations after deducting manufacturing, selling and administrative expense and federal taxes of the American Steel Foundries during 1924 were \$5,759,070. Dividends of \$3 per share were paid on the common stock during the year. Gross sales amounted to \$46,088,069 compared with \$63,591,962 in 1923. The working capital at the end of the year amounted to \$22,192,262 and the surplus was \$16,462,413. During the year \$314,975 was spent in additions to property and \$2,975,784 for maintenance and repairs. The income account for 1924 with comparisons for 1923, follows:

	1924	1923
Earnings from operations, after deducting manufacturing, selling and administrative expense and federal taxes	\$5,759,070	\$9,931,456
Deduct—		
Depreciation	1,118,459	1,370,391
Net profit from operation	\$4,640,611	\$7,661,065
Add—Miscellaneous Income:		
Interest, discount and exchange, etc.	\$134,041	\$104,485
Income from investments	303,002	147,021
	\$437,043	\$251,506
Total profits and income	\$5,077,654	\$7,912,571
Deduct—		
Interest on loans		17,967
Net earnings of subsidiary company appertaining to outstanding minority stockholdings	290,616	298,659
	\$290,616	\$316,626
Net profits carried to unappropriated surplus	\$4,787,038	\$7,595,944

Trade Publications

MAKING BRICK PAVEMENTS.—The National Paving Brick Manufacturers' Association, Cleveland, Ohio, has issued a 16-page pamphlet illustrating and describing the manufacture of paving bricks and the laying of brick pavements. The first portion of this, relating to the manufacture of paving bricks, is of general interest to the user, while the latter portion, covering the laying of pavement, contains many valuable suggestions concerning the best practice in the handling of this form of construction. Information in this pamphlet is supplemented by another, entitled "Brick Roads," which covers such matters as the cost of different forms of pavement and records of service life.



Wide World

Loading Locomotives for Shipment to Argentina at Christiania (now Oslo)

Railway Construction

ATCHISON, TOPEKA & SANTA FE.—The addition to the stores department building at San Bernardino, Cal., which was reported in the *Railway Age* of January 17 as being planned, will be of reinforced concrete, three stories high, and 270 ft. long by 50 ft. wide.

ATCHISON, TOPEKA & SANTA FE.—This company is planning the construction of a passenger station at Flagstaff, Ariz.

CANADIAN NATIONAL.—George P. Graham, Minister of Railways and Canals at Ottawa, has given notice of a bill in the House of Commons providing for the building of a branch line from Turtleford, Sask. The line will have a mileage of 67, including 23 miles already graded and the total estimated cost will be \$1,871,000. This bill was one of those passed last session by the House of Commons, but rejected by the Senate.

CANADIAN PACIFIC.—This company plans to extend the Cutknife-Whitford branch line to Edmonton, Alta., by way of Clover Bar. This line is now in operation from Cutknife, Sask., to Battle River, and the company intends to grade and lay rail for 80 miles from Battle River to a point 25 miles beyond Lloydminster, Alta., this year. The survey passes midway between the Canadian National line and the Saskatchewan River to a point north of Whitford Lake and then southwest to Edmonton.

CANADIAN PACIFIC.—This company will make application at this session of the Canadian Parliament for an act authorizing it to construct a branch line commencing at a point on its Moose Jaw southwesterly branch, to be extended in a southerly and south-easterly direction.

CHICAGO, BURLINGTON & QUINCY.—Bids will be taken until March 24 for the construction of a three-stall brick extension to the engine-house at Burlington, Ia.

CHICAGO, ROCK ISLAND & PACIFIC.—A contract for the construction of a frame car repair shop to cost \$19,000 at Hulbert, Ark., has been awarded to the T. S. Leake Construction Company, Chicago.

GOLDEN BELT.—The Interstate Commerce Commission has made public a proposed report by Examiner Davis recommending a finding that public convenience and necessity have not been shown to require the construction of this company's proposed line from Great Bend to Hays, Kans., together with a branch, making a total of 80 miles.

KANSAS CITY SOUTHERN.—New facilities to be constructed by this road this year include industry tracks at Port Arthur, Tex., and Shreveport, La., to cost \$30,000; a creosoted ballasted deck trestle at new grade near Kingston, La., to cost \$26,000; and a brick freight and passenger station at Gentry, Ark., to cost \$22,500.

MISSOURI PACIFIC.—A contract has been awarded to the L. M. Wimberly Construction Company, Arcadia, La., for the construction of a 10-mile extension of the Eudora branch from Epps, La., to Delhi, reported in the *Railway Age* of November 22, 1924. The project will cost approximately \$350,000.

MISSOURI PACIFIC.—A contract has been awarded to C. P. Johnson, Sedalia, Mo., for the construction of a passenger station at El Dorado, Ark., reported in the *Railway Age* of February 14.

NATIONAL RAILWAYS OF MEXICO.—This company will soon begin the construction of a line to connect Yavaros, a port on the West coast, with Chihuahua. The new line will provide rail communication between the state of Sonora and the central part of Mexico without going through the United States as at present.

PACIFIC ELECTRIC.—A contract has been awarded to the P. J. Walker Company, Los Angeles, Cal., for the construction of a subway terminal building in Los Angeles, reported in the *Railway Age* of January 17. The project will cost approximately \$4,000,000.

PACIFIC ELECTRIC.—The harbor engineer and business interests of Los Angeles, Cal., are endeavoring to eliminate this company's drawbridge between Wilmington, Cal., and San Pedro, contending that it interferes with traffic. Alternative plans involving expenditures estimated at from \$1,217,000 to nearly \$2,000,000 have been laid before the Harbor Commission. These propose that the bridge shall be eliminated and that a 60-ft. right-of-way for four tracks be secured along the present highway or along A street in Wilmington and thence to San Pedro.

PITTSBURGH & LAKE ERIE.—A contract for the reconstruction of a 20-stall enginehouse at McKees Rocks has been awarded to the Walker & Curley Company of Pittsburgh, Pa.

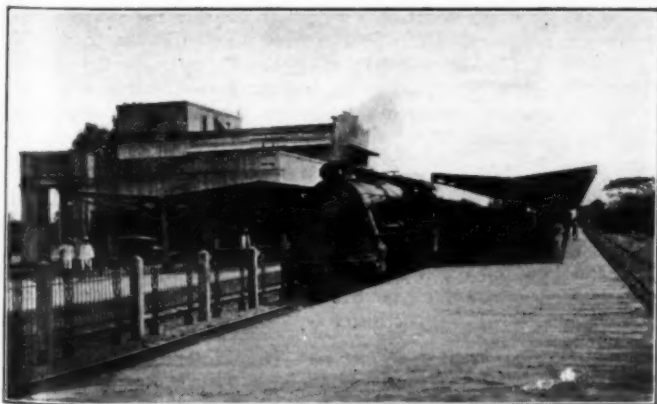
SOUTHERN PACIFIC.—This company has applied to the Interstate Commerce Commission for authority for the construction of an extension from Hinsdale, Cal., north 10 miles into Reclamation Districts 660 and 70.

ST. LOUIS SOUTHWESTERN.—This company plans the construction this year of a new passenger station at Athens, Tex., at a cost of \$27,000, and a 24-ft. by 130-ft. freight and passenger station at Fordyce, Ark., at a cost of \$21,000. New yard facilities at Dallas, Tex., will cost \$23,700 and a water station will be installed at Athens at a cost of \$19,000. Most of this work will be done by company forces.

TEMISKAMING & NORTHERN ONTARIO.—Premier G. Howard Ferguson announced in the Ontario Legislature at Toronto last week that the Temiskaming & Northern Ontario line into the new gold region of Rouyn, Quebec, would be started immediately. The Rouyn line will be an extension of the Swastika branch and 37 miles long and will cost approximately \$1,750,000.

WABASH.—Bids are being taken for the construction of three reinforced concrete coaling stations, one of 400 tons' capacity at St. Louis, Mo., another of 300 tons' capacity at Bement, Ill., and another of 200 tons' capacity at Tracy, Iowa.

WABASH.—The fight against the plan of the city of St. Louis for the elimination of the Delmar boulevard grade crossing, which requires that the tracks be depressed, is to be continued in the United States Supreme Court, instead of dropped, as reported in the *Railway Age* of February 28. Counsel for the Wabash has secured a writ of error against the decision of the Missouri Supreme Court upholding the plan of the city of St. Louis and the appeal will be taken to the United States court at once. The point raised is that the decision of the Missouri Supreme Court deprives the Wabash of property rights without due process of law, and that the order for the grade separation is contrary to the spirit of the Transportation Act, since it would require the Wabash to abandon its present right-of-way through Forest Park and to construct another line in another part of the city without the approval of the Interstate Commerce Commission. The Wabash proposal has been to eliminate the crossing by the elevation of its tracks over Delmar boulevard.



Gilliams

Paco Station, Manila, P. I.

Railway Financial News

ALAMEDA BELT LINE.—Acquisition.—The Atchison, Topeka & Santa Fe and the Western Pacific have applied to the Interstate Commerce Commission for authority to acquire control of this company by the purchase of one-half of its stock by each. The company proposes to build a 4-mile belt line in the city of Alameda, Calif., by acquiring and extending a line owned by the city and it has filed an application for a certificate authorizing the construction. The Santa Fe and the Western Pacific also have filed applications for certificates authorizing them to extend service by lighter, car float or ferry to connect with the new line.

ALEXANDRIA & WESTERN.—Abandonment.—The Interstate Commerce Commission has made public a proposed report by Examiner Brown recommending that the commission issue a certificate authorizing the abandonment of the line from Alexandria to McFarland, La., 20.65 miles.

ANN ARBOR.—Bonds.—This company has applied to the Interstate Commerce Commission for authority to nominally issue \$931,500 of improvement and extension mortgage bonds.

ANN ARBOR.—Notes Offered.—Love, Macomber & Co., New York; F. R. Sawyer & Co., Inc., Boston, and Charles D. Robbins & Co., New York, are offering at 99 and interest, to yield about 6.20 per cent, \$1,000,000 5-year 6 per cent secured gold notes.

ANN ARBOR.—Notes.—This company has applied to the Interstate Commerce Commission for authority to issue and sell \$1,000,000 of five-year 6 per cent notes and to issue and pledge \$2,000,000 of improvement and extension mortgage bonds as collateral.

CAROLINA, CLINCHFIELD & OHIO.—Initial Dividend.—Directors on March 12 declared an initial quarterly regular dividend of 75 cents on the common stock, payable April 10 to stockholders of record March 31. This company is leased by the Atlantic Coast Line and Louisville & Nashville. The company has \$25,000,000 common stock outstanding.

CHICAGO, ROCK ISLAND & PACIFIC.—Abandonment.—Examiner Davis, of the Interstate Commerce Commission, in a proposed report, has recommended that the commission permit the abandonment of the line from West Davenport to Stockton, Ia., 16 miles.

CHICAGO, ROCK ISLAND & PACIFIC.—Bonds Authorized.—The Interstate Commerce Commission has granted authority for this company to issue \$1,000,000 of general-mortgage gold bonds to be delivered to the trustee under the applicant's first and refunding mortgage; and \$1,000,000 of first and refunding mortgage gold bonds to be pledged and repledged from time to time, up to June 30, 1927, as collateral security for notes.

CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS.—1924 Earnings.—Income statement for 1924 shows net, after charges, of \$8,080,932, equivalent, after allowance for preferred dividends, to \$16.12 per share of common stock. Net income in 1923 totaled \$11,617,354, equivalent to \$23.63 per share of common stock. The company pays 5 per cent dividends on both classes of stock. The New York Central owns about 91 per cent of the common. In the past two years the company has carried to profit and loss a total of \$14,381,465. Selected items from income account follow:

CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS			
	Year ended Dec. 31, 1924	Year ended Dec. 31, 1923	Increase or decrease
Mileage	2,398	2,408	—10
Railway operating revenues..	\$87,712,381	\$94,941,444	—\$7,229,063
Railway operating expenses...	66,740,728	72,114,741	—5,374,013
NET REVENUE FROM RAILWAY OPERATIONS	\$20,971,654	\$22,826,703	—\$1,855,050
Percentage of expenses to revenues	(76.09)	(75.96)	(.13)
Railway tax accruals.....	\$4,906,837	\$5,124,227	—\$217,390
Railway operating income....	\$16,049,966	\$17,689,270	—\$1,639,304
Equipment rents, net debit....	\$1,112,206	\$269,866	\$842,341
Joint facility rents, net debit....	573,492	727,503	—154,011

NET RAILWAY OPERATING INCOME	\$14,364,267	\$16,691,901	—\$2,327,634
GROSS INCOME	\$15,845,727	\$19,299,598	—\$3,453,872
Deductions from gross income:			
Interest on funded debt.....	\$7,073,343	\$6,729,744	\$343,599
TOTAL DEDUCTIONS FROM GROSS INCOME	\$7,764,795	\$7,682,244	\$82,551
NET INCOME	\$8,080,932	\$11,617,354	—\$3,536,422
Disposition of net income:			
Dividends declared:			
On preferred stock, 5 per cent each year.....	\$499,925	\$499,925	.....
On common stock, 5 per cent in 1924, 4 per cent in 1923.	2,351,435	1,881,148	\$470,287
Total appropriations of income,	\$2,894,578	\$2,422,242	\$472,336
Surplus for the year carried to profit and loss.....	\$5,186,354	\$9,195,112	—\$4,008,759

DENISON, BONHAM & NEW ORLEANS.—Receivership Ended.—The receivership of the Denison, Bonham & New Orleans, recently sold (see *Railway Age* of January 31), was dismissed on February 6, 1925, and the property was returned to its corporate owners.

HARTLAND.—Acquisition.—This company has applied to the Interstate Commerce Commission for authority to acquire and operate a railroad over a right of way from Hartland to Greendale, W. Va., on which track has been laid from Hartland to Bickmere. It is proposed to pay for the property \$10,000 in cash and a note for \$78,139.

INTERSTATE.—Authorized to Issue Stock.—The Interstate Commerce Commission has authorized an issue of \$183,200 capital stock at par to capitalize additions and betterments hitherto made.

IRONTON.—Lease.—The Lehigh Valley and the Reading have filed a joint application with the Interstate Commerce Commission for approval of a lease of this company's property.

KANSAS CITY, MEXICO & ORIENT.—Government Loan Asked.—The receiver, in connection with a proposed plan of reorganization, has filed with the Interstate Commerce Commission an application for an additional government loan of \$1,000,000, in the form of an amendment to the application of June 4, 1920, in which \$3,500,000 was asked, but under which the commission authorized a loan of only \$2,500,000. This amount is still owing to the government, together with some unpaid interest, and the receiver asks that the new loan be made for 15 years and that the old loan be extended for that period. Authority is also asked for an issue of \$1,000,000 of receiver's certificates to be used as collateral for the loan.

MICHIGAN CENTRAL.—1924 Earnings.—Income statement for 1924 shows net, after charges, of \$13,627,534, equivalent to \$72.71 per share of outstanding stock, as compared with \$14,176,448, equivalent to \$75.66 in 1923. Surplus, after 20 per cent dividends, totaled \$9,880,254. The New York Central owns about 95 per cent of the Michigan Central's outstanding capital stock. Selected items from income account follow:

MICHIGAN CENTRAL			
	Year ended Dec. 31, 1924	Year ended Dec. 31, 1923	Increase or decrease
Mileage	1,862	1,863	—1
Railway operating revenues..	\$87,614,662	\$94,798,042	—\$7,183,380
Railway operating expenses...	62,159,524	67,639,532	—\$5,480,008
NET REVENUE FROM RAILWAY OPERATIONS	\$25,455,138	\$27,158,510	—\$1,703,372
Percentage of expenses to revenues	(70.95)	(71.35)	(.40)
Railway tax accruals.....	\$5,584,590	\$5,615,544	—\$30,953
Railway operating income....	\$19,840,033	\$21,567,667	—\$1,727,634
Equipment rents, net debit....	\$312,266	\$1,619,002	—\$1,306,737
Joint facility rents, net debit..	542,484	560,489	18,005
NET RAILWAY OPERATING INCOME	\$18,985,283	\$19,388,175	—\$402,892
GROSS INCOME	\$20,122,325	\$20,751,012	—\$628,687
Deductions from gross income:			
Rent for leased roads.....	\$2,734,782	\$2,736,451	—1,669
Interest on funded debt.....	3,541,245	3,201,121	340,124
TOTAL DEDUCTIONS FROM GROSS INCOME	\$6,494,791	\$6,574,564	—\$79,773
Net income	\$13,627,534	\$14,176,448	—\$548,914
Disposition of net income:			
Dividends declared (20 per cent each year)	\$3,747,280	\$3,747,280	.....
Surplus for the year carried to profit and loss.....	\$9,880,254	\$10,429,168	—\$548,914

NEW YORK CENTRAL.—1924 Earnings.—Income statement for 1924 for the New York Central Railroad Company shows net railway operating income of \$64,635,074, as compared with \$70,989,101 in 1923, a decrease of \$6,401,298. Net, after charges, in 1924 was \$39,250,400, equivalent to \$12.87 per share of outstanding stock. This compared with net income in 1923 of \$45,339,427, equivalent to \$16.89 per share. Selected items from income account follow:

NEW YORK CENTRAL RAILROAD COMPANY Including New York Central and Ohio Central Lines			
	Year ended Dec. 31, 1924	Year ended Dec. 31, 1923	Increase or decrease
Mileage	6,920	6,890	—31
Railway operating revenues..	\$369,606,930	\$421,034,784	—\$51,427,854
Railway operating expenses...	279,970,163	325,917,241	—\$45,947,078
NET REVENUE FROM RAILWAY OPERATIONS	\$89,636,767	\$95,117,543	—\$5,480,775
Percentage of expenses to revenues	(75.75)	(77.41)	—(1.66)
Railway tax accruals.....	\$23,289,540	\$22,656,867	\$632,673
Uncollectible railway revenues	179,340	104,976	74,364
Railway operating income....	\$66,167,887	\$72,355,699	—\$6,187,812
Equipment rents, net debit.....	\$4,602,564	\$4,482,667	\$119,897
Joint facility rents, net credit..	3,069,751	3,116,069	—46,318
NET RAILWAY OPERATING INCOME	\$64,635,074	\$70,989,101	—\$6,354,026
Miscellaneous operating income..	\$163,012	\$210,284	—\$47,271
Total operating income.....	\$64,798,087	\$71,199,384	—\$6,401,298
NON-OPERATING INCOME			
Separately operated properties—			
Profit	\$1,297,993	\$1,914,956	—\$616,964
Dividend income	14,388,778	14,911,850	—\$523,072
Total non-operating income..	\$24,123,217	\$24,668,309	—\$545,092
Gross income	\$88,921,304	\$95,867,694	—\$6,946,390
DEDUCTIONS FROM GROSS INCOME			
Rent for leased roads.....	\$13,027,600	\$13,948,833	—\$921,233
Interest on funded debt.....	34,191,311	33,881,249	310,062
Total deductions from gross income	\$49,670,904	\$50,528,267	—\$857,363
NET INCOME	\$39,250,400	\$45,339,427	—\$6,089,027
DISPOSITION OF NET INCOME			
Dividends declared (7 per cent, 1924; 6½ per cent, 1923)....	\$20,728,835	\$17,432,978	\$3,295,857
Sinking and other reserve funds.	122,104	144,754	—22,650
Investment in physical property .....	.....	12,917	—12,917
Total appropriations of income.	\$20,850,939	\$17,590,649	\$3,260,290
SURPLUS FOR THE YEAR CARRIED TO PROFIT AND LOSS.....	\$18,399,461	\$27,748,778	—\$9,349,317

NEW YORK, CHICAGO & ST. LOUIS.—Hearings on Merger Plans.—The Interstate Commerce Commission has set April 15 as the date on which it will hold hearings with reference to the Nickel Plate merger, and the application for a certificate of public convenience and necessity for the building of the new connecting line between Valley Crossing, Ohio, and Gregg.

Protective Committee Protests to I. C. C.—The New York, C. & O. Stockholders Protective Committee, through Albert I. Stiles, its secretary, who is a C. & O. stockholder, has filed with the commission a petition asking leave to intervene.

The Richmond, C. & O. stockholders committee headed by George Cole Scott has announced that it will apply for an injunction in the chancery court of Virginia to restrain the stockholders of the Chesapeake & Ohio from approving at the meeting called for March 30, the proposed lease of the C. & O. to the Nickel Plate. The New York committee has announced that it will seek an injunction in case the Interstate Commerce Commission approves the merger under the terms as at present proposed.

NEW YORK, NEW HAVEN & HARTFORD.—Bonds Oversubscribed.—Announcement was made by the New Haven on March 15 as follows: "Returns so far received indicate a total subscription of \$30,500,000 for the \$23,000,000 issue to refund the company's European Loan on April 1. This will mean an allotment to subscribers for the amounts over \$1,000 of about 75 per cent of their subscriptions."

NORFOLK SOUTHERN.—Valuation.—The Interstate Commerce Commission has issued a report in which it finds the final valuation for rate-making purposes of the property owned and used for common carrier purposes as of June 30, 1914, to be \$21,622,000; that of the property owned but not used to be \$6,500, and that of

the property used but not owned to be \$2,804,465. The carrier's books, according to the report, record an investment of \$28,333,531 in carrier property, including lands, but it is stated that an examination of the records indicates that the maximum investment is \$21,056,699, the remainder being for items not property chargeable to investment. Commissioner Eastman dissented, expressing the conclusion that the value for rate-making purposes should not exceed \$21,800,000. Commissioner Cox also dissented.

PITTSBURGH & LAKE ERIE.—1924 Earnings.—Income statement for 1924 shows net, after charges, of \$6,165,155, equivalent to \$8.56 per share (\$50 par value) of outstanding capital stock, as compared with \$13,170,106, equivalent to \$18.30 per share in 1923. The company pays 10 per cent dividends and in the past two years a surplus has been carried to profit and loss totaling \$12,138,141. Selected items from income account follow:

PITTSBURGH & LAKE ERIE			
	Year ended Dec. 31, 1924	Year ended Dec. 31, 1923	Increase or decrease
Mileage	231	234	—3
Railway operating revenues...	\$31,421,149	\$44,666,690	—\$13,245,541
Railway operating expenses...	25,590,148	30,677,899	—5,087,751
NET REVENUE FROM RAILWAY OPERATIONS	\$5,831,001	\$13,988,791	—\$8,157,790
Percentage of expenses to revenues	(81.44)	(68.68)	(12.76)
Railway tax accruals	\$1,908,506	\$2,753,881	—\$845,376
Railway operating income....	\$3,919,542	\$11,233,649	—\$7,314,107
Equipment rents, net credit....	\$4,292,149	\$4,503,194	—\$211,045
Joint facility rents, net debit...	65,471	162,249	—96,778
NET RAILWAY OPERATING INCOME	\$8,146,221	\$15,574,595	—\$7,428,374
Gross income	\$9,225,897	\$16,794,617	—\$7,568,720
Deductions from gross income:			
Rent for leased roads.....	\$818,708	\$854,822	—\$35,114
Interest on funded debt.....	543,876	577,966	—34,090
TOTAL DEDUCTIONS FROM GROSS INCOME	\$3,060,742	\$3,624,510	—\$563,769
Net income	\$6,165,155	\$13,170,106	—\$7,004,951
Dispositions of net income:			
Dividends declared, 10 per cent each year.....	\$3,598,560	\$3,598,560	.....
Surplus for the year carried to profit and loss.....	\$2,566,595	\$9,571,546	—\$7,004,951

PITTSBURGH, CINCINNATI, CHICAGO & ST. LOUIS.—Abandonment.—This company has applied to the Interstate Commerce Commission for authority to abandon a branch line from Superior Junction to Dugger, Ind.

ROSCOE, SNYDER & PACIFIC.—Valuation.—The Interstate Commerce Commission has found that the final value for rate-making purposes of the property owned and used for common carrier purposes, as of June 30, 1916, was \$538,000. The company had claimed a value of at least \$955,254.

READING.—Equipment Trust.—This company has applied to the Interstate Commerce Commission for authority for an issue of \$7,500,000 of equipment trust certificates.

RUTLAND.—Income Account.—The income account for the year ended December 31, 1924, shows a surplus of \$407,309, as compared with a surplus of \$463,909 in 1923. The statement follows:

RUTLAND RAILROAD COMPANY			
Income Account for the Year 1924			
	Year ended Dec. 31, 1924	Year ended Dec. 31, 1923	Increase or decrease
Operating income—			
Railway operations:			
Railway operating revenues...	\$6,509,063	\$6,695,786	—\$186,723
Railway operating expenses...	5,476,007	5,628,599	—152,591
Net revenue from railway operations	\$1,033,055	\$1,067,187	—\$34,132
Percentage of expenses to revenues	(84.13)	(84.06)	(.07)
Railway tax accruals.....	\$297,307	\$281,170	\$16,137
Uncollectible railway revenues...	425	105	321
Railway operating income....	\$735,324	\$785,913	—\$50,589
Equipment rents, net debit....	\$12,466*	\$1,125	—\$13,591
Joint facility rents, net credit...	51,818	83,355	—31,537
Net railway operating income...	\$799,608	\$868,143	—\$68,536

Non-operating income—			
Dividend income	\$14,885	\$14,885	.....
Total non-operating income...	\$79,087	\$51,598	\$27,489
Gross income	\$878,695	\$719,741	—\$158,954
Deductions from gross income:			
Rent for leased roads.....	\$19,000	\$19,000	.....
Interest on funded debt....	447,175	431,460	\$15,715
Total deductions from gross income.....	\$471,385	\$455,832	\$15,554
Surplus for the year carried to profit and loss.....	\$407,309	\$463,909	—\$56,600

* Credit.

WABASH.—Notes Offered.—Hambleton & Co. and Edward Lower Stokes & Co. are offering at 100.7335, to yield about 4½ per cent to September 1, 1925, and 6 per cent thereafter, \$1,500,000 6 per cent secured gold notes, due March 1, 1930.

WESTERN PACIFIC.—Bonds.—The Interstate Commerce Commission has authorized an issue of \$4,000,000 of first mortgage 5 per cent gold bonds to be sold at not less than 90.

WESTERN PACIFIC.—Details of Dividend.—Alvin W. Krech, chairman of the board of the Western Pacific Railroad Corporation, has addressed to stockholders a letter explaining the dividends and other plans to which stockholders will be asked to give their assent at a special meeting on May 11.

As a result of proceedings against the old Denver & Rio Grande, to realize upon the obligation of that company assigned by the old Western Pacific bondholders to the present Western Pacific Railroad Corporation, the latter now holds: Miscellaneous securities, almost all readily convertible into cash, of an appraised value of \$16,291,300; a half interest in the common stock of the reorganized Denver & Rio Grande Western and a half interest in the stock of the Utah Fuel Company, with an appraised value of \$12,500,000; general mortgage bonds of the D. & R. G. W. of \$3,751,875 par value, and \$2,073,000 par value 6 per cent preferred stock of the D. & R. G. W. Bonds and preferred of the new Denver mentioned above are deposited as collateral to \$5,175,000 principal amount of 4 per cent notes of Western Pacific Railroad Corporation, maturing October, 1930, which were issued to acquire bonds of D. & R. G. in order to carry out the recent reorganization plan.

The board proposes to distribute these assets to the stockholders "in proportion to their holdings of the stock without any preference or priority in favor of either class of stock."

"The board has concluded to capitalize the interest of the corporation in the common stock of the Denver and in the stock of the Utah Fuel Company at \$12,500,000 and issue an amount of common stock of this corporation having a par value equal to that amount to be distributed as a stock dividend."

"To capitalize out of other recoveries, assets of the value of \$12,500,000 and issue preferred stock of this corporation having a par value equal to that amount against the same. This will permit distribution of one share of preferred and one share of common for each six shares of preferred or common held by the stockholders, respectively, preferred and common stockholders sharing alike, certificates for the new stock to be issued as of July 1, 1925."

WISCONSIN CENTRAL.—Tentative Valuation.—The Interstate Commerce Commission has issued a tentative valuation report placing the final value for rate-making purposes, as of June 30, 1917, at \$44,445,800 for the property owned and \$50,284,398 for the property used. The capitalization as of valuation date was \$66,631,828 and the investment in road and equipment as readjusted was \$62,703,865.

Dividends Declared

Cleveland, Cincinnati, Chicago & St. Louis.—Common, 1¼ per cent, quarterly; preferred, 1¼ per cent, quarterly; both payable April 20, to holders of record April 1.

New York Central.—1¼ per cent, quarterly, payable May 1 to holders of record April 1.

Philadelphia & Trenton.—2½ per cent, quarterly, payable April 10.

Philadelphia & Western.—Preferred, 1¼ per cent, quarterly, payable April 15 to holders of record March 31.

Pittsburgh, Bessemer & Lake Erie.—Common, 75 cents, payable April 1 to holders of record March 14.

Southern Railway.—Common, 1¼ per cent, quarterly, payable May 1, to holders of record April 10. Preferred, 4¼ per cent, quarterly, payable April 15 to holders of record March 25.

Tonopah & Goldfield.—Preferred, 7 per cent, annually, payable March 14 to holders of record March 11.

United New Jersey Railroad & Canal Companies.—2½ per cent, quarterly payable April 1.

West Jersey & Seashore.—Common, 2½ per cent, semi-annually, payable April 1 to holders of record March 17.

Trend of Railway Stock and Bond Prices

	March 17	Last Week	Last Year
Average price of 20 representative railway stocks	80.27	81.90	62.55
Average price of 20 representative railway bonds	90.52	90.47	84.36

Railway Officers

Financial, Legal and Accounting

P. M. Gatch and **S. M. Copp**, assistant general claim agents of the Illinois Central, with headquarters at Chicago, have been promoted to general claim agents, with the same headquarters, newly created positions. **E. W. Sprague** has been appointed general claim agent, with headquarters at Memphis, Tenn., also a newly created position.

William J. Daeschner has been appointed auditor of freight accounts of the Michigan Central and the Toronto, Hamilton & Buffalo, with headquarters at Detroit, Mich., succeeding **Alfred S. Dutton**, who has resigned because of ill health. **Frank S. Chalmers** has been appointed assistant auditor of freight accounts succeeding Mr. Daeschner.

Operating

H. Horn has been appointed assistant general manager of the Alaska Railroad, with headquarters at Anchorage, Alaska. He will also continue to perform his former duties as superintendent of track, bridges and buildings.

F. L. Sample, assistant superintendent of the Detroit terminals of the Grand Trunk, with headquarters at Milwaukee Junction, Mich., has been promoted to acting superintendent of the Detroit terminals, with headquarters at Detroit, succeeding **E. F. Gorman**, who has been promoted. **F. B. Lyman** has been appointed acting assistant superintendent of the Detroit terminals, with headquarters at Milwaukee Junction, succeeding Mr. Sample.

H. L. Wiltrout has been appointed assistant superintendent of the Milwaukee Terminal division of the Chicago, Milwaukee & St. Paul, with headquarters at Milwaukee, Wis. **A. J. Elder** has been appointed assistant superintendent of the Twin City Terminal division, with headquarters at Minneapolis, Minn. **O. A. O'Neill** has been appointed trainmaster on the Chicago and Milwaukee divisions, with headquarters at Milwaukee, Wis., succeeding **E. H. Bannon**, promoted.

In the biographical sketch of **C. McNay**, assistant to the general manager of the Missouri Pacific, which appeared in the *Railway Age* of February 28, it was erroneously stated that Mr. McNay had served at various times as master mechanic, division superintendent, general superintendent and general manager. The item should have read that he held the position of secretary and chief clerk to officers of those ranks. Mr. McNay was promoted to assistant to the general manager from the position of office manager to the vice-president and general manager, to which he was appointed in 1923.

Traffic

E. R. Newman, assistant freight traffic manager of the Wabash, with headquarters in Chicago, has been appointed special representative with the same headquarters and will be succeeded by **R. A. Walton**, general agent, with headquarters in Philadelphia, Pa.

George Williams, general freight agent of the Denver & Rio Grande Western, with headquarters at Denver, Colo., has been promoted to freight traffic manager, with the same headquarters, a newly created position. **B. H. Taylor** has been appointed general freight agent, with headquarters at Denver, succeeding Mr. Williams.

Mechanical

G. G. Davis, superintendent of shops of the Cleveland, Cincinnati, Chicago & St. Louis, with headquarters at Beech Grove, Ind., has retired from active service.

W. F. Laure, general foreman of the Illinois Central, with headquarters at Memphis, Tenn., has been promoted to master mechanic to succeed **O. A. Garber**, resigned to accept service with another company.

Purchasing and Stores

C. L. Buckingham has been appointed engineer of tests of the Missouri-Kansas-Texas, with headquarters at Parsons, Kansas, succeeding **N. J. Boughton**, who has been transferred.

Obituary

C. W. Kieswetter, traffic manager of the Duluth, Missabe & Northern, died in Duluth, Minn., on March 8.

C. H. Redington, formerly assistant treasurer of the Southern Pacific, died on March 9 in San Francisco, Calif., at the age of 83 from injuries which he suffered when struck by a street car.

G. W. Briece, assistant to the general manager of the Missouri Pacific with headquarters at St. Louis, Mo., died in that city on March 17 of cirrhosis of the liver. Mr. Briece had been ill for six months. A photograph of Mr. Briece and an outline of his railway career appeared in the *Railway Age* of December 13, 1924.

Harry W. L. Porth, assistant master car builder of Swift & Co., Chicago, and president of the Chicago Car Foremen's Association, whose death on March 2 in Chicago was reported in the *Railway Age* of March 14, was born on January 18, 1889, in Utica, Kans. He entered the employ of Swift & Co. in April, 1912, as an engineer in the mechanical department at Kansas City, Mo. During the next few years he was promoted to assistant master mechanic and was transferred to the car department, Chicago, as a sub-foreman. In December, 1917, he was promoted to assistant master car builder, which position he held until his death.

H. B. Hull, vice-president of the Illinois Central, with headquarters at Chicago, died in San Antonio, Texas, on March 17. He was taken suddenly ill in the afternoon of March 16 and died of heart failure early the next morning. Mr. Hull was born on March 11, 1870, at Chamois, Mo. After engaging in newspaper work at Hannibal, Mo., for several years, he entered railway service as a clerk in the passenger department of the Chicago, Burlington & Quincy at St. Louis, Mo., in 1896. He entered the service of the Illinois Central as claim agent at McComb, Miss., in November, 1898. In 1901 he was transferred to Springfield, Ill., and was promoted to district claim agent, with headquarters at Memphis, Tenn., in 1904. He was promoted to assistant general claim agent, with the same headquarters, in 1905, and held that position until July, 1911, when he was transferred to Chicago. Mr. Hull was promoted to general claim agent on March 15, 1913, and continued in that capacity until November 1, 1921, when he was promoted to assistant to the president. He held that position until November, 1924, when he was elected vice-president. In recent years Mr. Hull had devoted himself chiefly to the promotion of satisfactory relations of the railways with the public and was one of the most able and prominent men in this field of work.



H. B. Hull